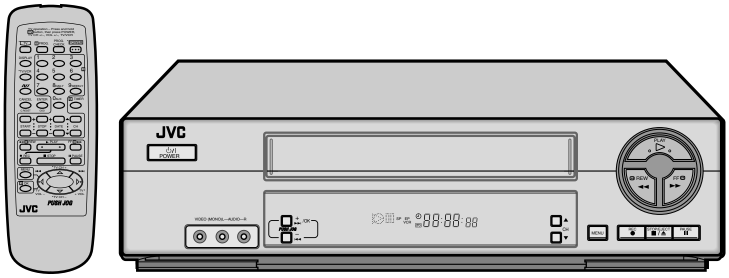
JVC

SERVICE MANUAL

VIDEOCASSETE

HR-J486EN/J486M/J683M



Hi-Fi

VHS
M-PAL NTSC

SQPB
NTSC/M-PAL

Regarding service information other than these sections, refer to the HR-J686M service manual (No. 82785). Also, be sure to note important safety precautions provided in the service manual.

ESPECIFICAÇÕES *(The specifications shown pertain specifically to the model HR-J683M/J486M)*

GERAL

Requisitos de Alimentação : AC 110 V – 220 V∿ , 50 Hz/ 60 Hz
Consumo de energia
- Sim : HR-J683M 19 W
  HR-J486M 17 W
- Não : 2.5 W

Temperatura
- Em funcionamento : 5°C to 40°C (41°F to 104°F)
- Armazenagem : –20°C to 60°C (–4°F to140°F)

Posição de Funcionamento : Apenas na horizental
Dimensões (C x A x P) : 360 mm x 94 mm x 278 mm
Peso : 3.3 kg
Formato : VHS standard
Tempo máximo de gravação
- SP : 210 min. com cassete de vídeo ST-210
- EP : 630 min. com cassete de vídeo ST-210

VÍDEO/AUDIO

Sistema de sinal : PAL-M- sinal de tipo cor e sinal monocromo EIA, 525 linhas/60 campos, NTSC-sinal tipo cor e sinal monocromo EIA, 525 linhas/60 campos (apenas para leitura)
Sistema de Gravação/ Leitura : Cabeça DA-4 (Azimute duplo), sistema de scan helicoidal
Racio de sinal-barulho : 45 dB
Resolução horizental : 230 linhas
Amplitude de frequência
- Audio normal : 70 Hz a 10,000 Hz
- Audio Hi-Fi (Apenas HR-J683M) : 20 Hz a 20,000 Hz

Entrada/Saída : Ligações RCA (ENTRADA x 1, SAÍDA x 1)

SINTONIZADOR

Sistema de sintonizador : Frequência–sintonizador sintetizado
Alcançe dos canais
- VHF : Canais 2–13
- UHF : Canais 14–69
- CATV : 113 Canais

Saída RF : Canal 3 ou 4 (alterável; pré-ajustado na fábrica para canal 3) 75 Ω Não equilibrado

TEMPORIZADOR

Referência de relógio : Quartz
Capacidade de Programa : 1 ano de temporizador programável/8 programas
Reserva de tempo de Memória : Aprox. 6 meses. Figura estimadas, baseada no fornecimento de uma pilha nova; o funcionamento concreto pode variar.

ACESSÓRIOS

Acessórios fornecidos : Cabo RF,
Unidade de controle remoto de raios infravermelhos,
Pilha de lítio CR2025,
Pilha de tamanho “AA” x 2,
Adaptador*

* Não fornecido em certas áreas

As especificações explicadas referem-se ao modo SP excepto especificado em contrário.
O design E & O.E e especificações estão sujeitas a alteração sem aviso prévio.

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September 2000

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The following table indicate main different points between models HR-J686M,HR-J486EN,HR-J486M and HR-J683M.

MODEL ITEM	HR-J686M	HR-J683M	HR-J486M	HR-J486EN
JOG/SHUTTLE DIAL ON DECK	USED	USED	USED	NOT USED
VIDEO SYSTEM	PAL–M/NTSC NTSC → PAL–M PB	←	←	PAL–N/NTSC
AUDIO	HiFi AUDIO	←	NORMAL AUDIO	←
TV MULTI BRAND REMOCON	C.BOX/DBS	NOT USED	NOT USED	C.BOX/DBS
FRONT PANEL COLER	CHMPAGNE GOLD	SILVER	←	LIGHT SILVER

The following tables indicate different parts number between models HR-J686M,HR-J486EN,HR-J486M and HR-J683M.

PACKING AND ACCESSORY ASSEMBLY <M1>

⚠	REF. NO.	MODEL ITEM	HR-J686M	HR-J683M	HR-J486M	HR-J486EN
	301	PACKING CASE	LP30658-018A	LP30670-016A	LP30670-014A	LP30670-018A
	302	CUSHION ASSY	LP30718-001A	LP30671-001C	LP30671-001C	LP30671-001C
	303	POLY BAG	PQM30021-93	PQM30021-92	←	←
	306	REMOTE CONTROLLER	LP20878-007B	LP20034-017A	←	(**)LP20303-016B
	306A	COVER(BATTERY)	LP40610-002A	LP40033-001A	←	LP40225-001A
⚠	310	INST BOOK(PT)	LPT0375-001A	LPT0374-001A	←	—
⚠		INST BOOK(SP)	—	—	—	LPT0377-001A
	312	RF CABLE	PEAC0446-120	←	←	LPA0294-04
	313	MATCHING TRANSFORMER	PU35613-2	—	PU35613-2	—
	316	WARRANTY CARD	BT-53003-1	←	←	—
	317	S.CENTER LIST	BT-53002-1	←	←	—

(**) Remote controller of the HR-J486EN is different from that of the HR-J686M but it is the same as that of the HR-J686EN.
For the Schematic diagram, please refer to the HR-J686EN.

CABINET AND CHASSIS ASSEMBLY<M2>

⚠	REF. NO.	MODEL ITEM	HR-J686M	HR-J683M	HR-J486M	HR-J486EN
⚠	501	FRONT PANEL ASSY	LP10289-033C	LP10293-012C	LP10293-011B	LP10293-014A
	501A	CASSETTE DOOR	LP20868-007A	←	LP20868-006A	←
	501C	DISPLAY WINDOW	LP20869-043A	LP20869-045A	LP20869-044A	LP20869-048A
	502	TOP COVER	LP10013-027C	PQ11898-38-18	←	←
	505	DRUM SUB ASSY	LP20617-001A	←	LP20617-003A	LP20617-004A
	505A	UPPER DRUM ASSY	LP20616-001A	←	LP20084-002A	LP20084-006A
⚠	511	BOTTOM CHASSIS	LP10108-009C	LP20262-006E	←	←
	512	BOTTOM COVER	LP10014-001B	PQ11899-1-4	←	←
⚠	523	POWER CODE	QMP73K0-170	←	←	QMPR130-170-JC
	528	POLY BAG(POWER PLUG)	—	—	—	PM30137

Notes : Mark — is not used.
Mark ← is same as left.

MAIN BOARD ASSEMBLY <03>

⚠	REF. NO.	MODEL ITEM	HR-J686M	HR-J683M	HR-J486M	HR-J486EN
	PW1	MAIN BOARD ASSY	LPA10088-14D1	LPA10088-37C1	LPA10088-15E1	LPA10088-19D1
	D5301	ZENER DIODE	*MTZJ15A	MTZJ15C	***	***
	R3226	MG RESISTOR	*NRSA02J-103X	NRSA02J-472X	***	***
	R3227	MG RESISTOR	*NRSA02J-103X	NRSA02J-472X	***	***
	R5306	MG RESISTOR	*NRSA02J-563X	NRSA02J-393X	***	***
	R5333	QMF RESISTOR	* —	QRL02DJ-391X	***	***
	R5334	QMF RESISTOR	* —	QRL02DJ-391X	***	***
	C5304	FCAPACITOR	*QFLC1HJ-563Z	QFVF1HJ-124Z	***	***

MINI FRONT BOARD ASSEMBLY <28>

⚠	REF. NO.	MODEL ITEM	HR-J686M	HR-J683M	HR-J486M	HR-J486EN
	PW6	MINI FRONT BOARD ASSY	LPA10088-02C6	◄——	LPA10088-01C6	LPA10088-02C6

Notes : Mark — is not used.
Mark ◄—— is same as left.
Mark * reference model was also charged.
Mark *** is indicated on the parts list.

VICTOR COMPANY OF JAPAN, LIMITED
VIDEO DIVISION

S40894

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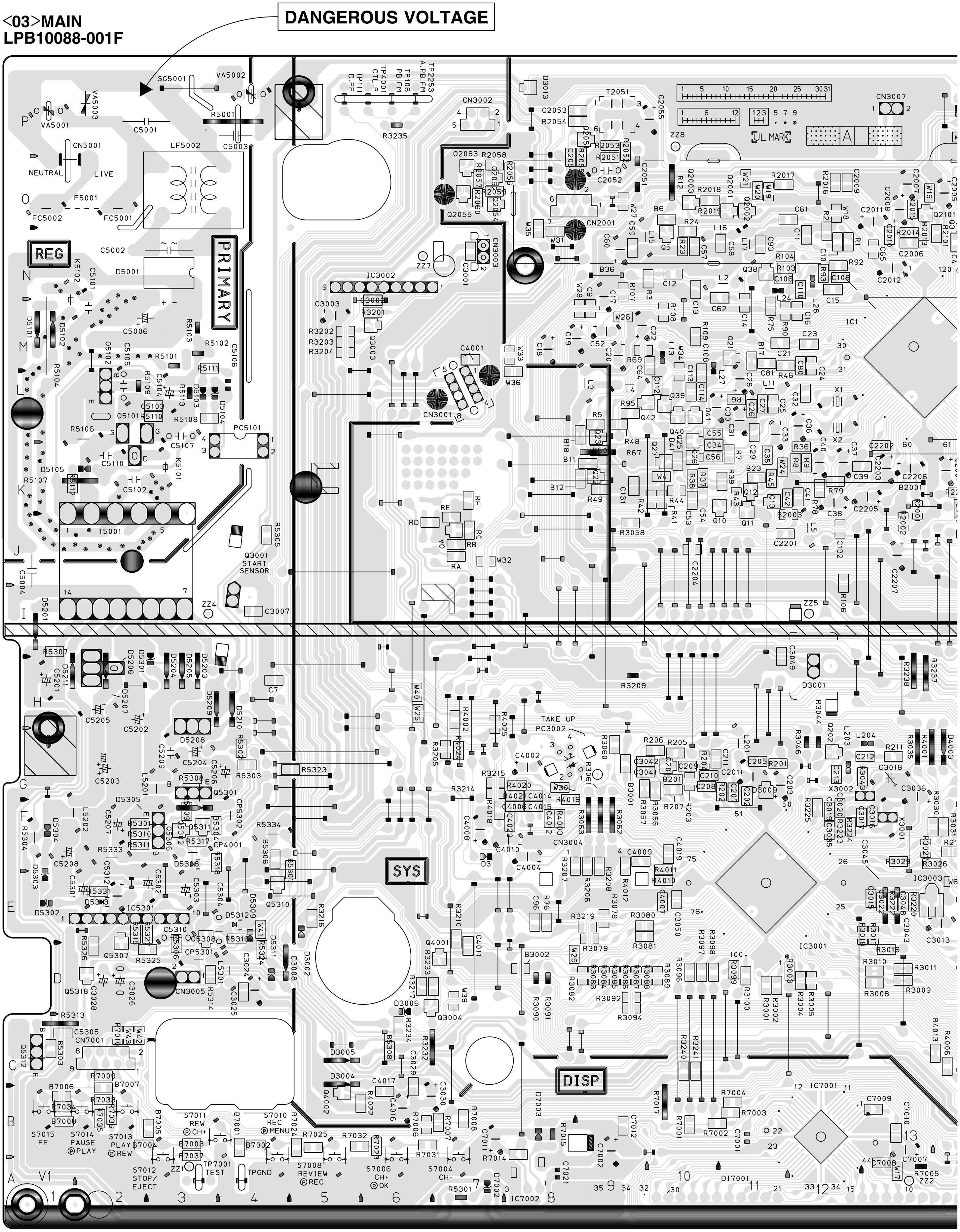
SECTION 4
CHARTS AND DIAGRAMS

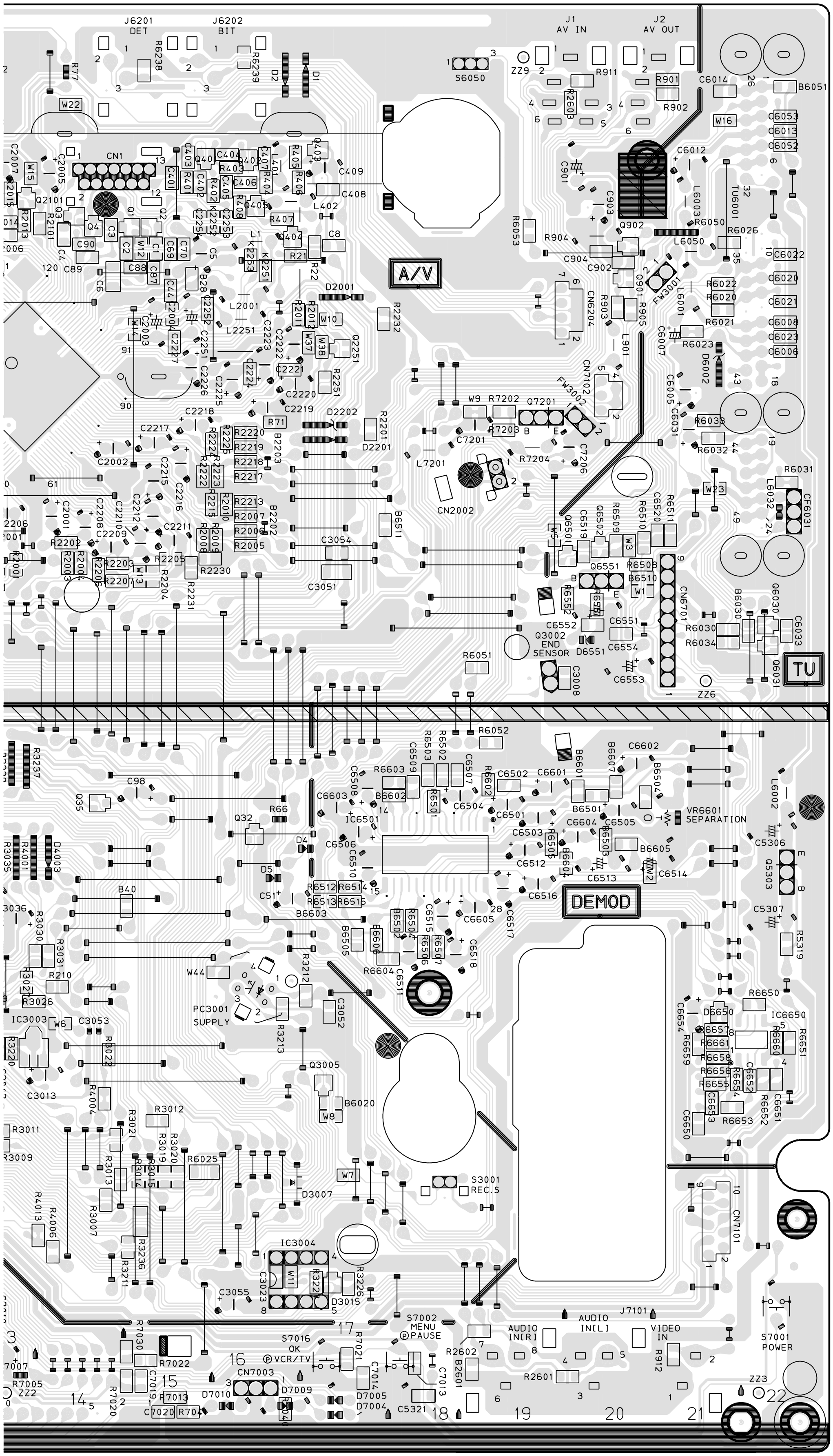
COMPONENT PARTS LOCATION GUIDE <MAIN> [HR-J683M]

REF.NO.	LOCATION		
CAPACITOR			
C1	B	C	15N
C2	B	C	15N
C3	B	C	14N
C4	B	C	14N
C5	A	D	15N
C6	B	C	14N
C7	B	C	4H
C8	B	C	17N
C9	B	C	9M
C10	B	C	12N
C11	B	C	12N
C12	B	C	10N
C13	B	C	10N
C14	B	C	11M
C15	B	C	12N
C16	B	C	12M
C17	A	D	9M
C18	A	D	8M
C19	A	D	9M
C20	A	D	9M
C21	B	C	11M
C22	A	D	9M
C23	B	C	12M
C24	B	C	12M
C25	B	C	11L
C26	B	C	11L
C27	B	C	11L
C28	A	D	11L
C29	B	C	11L
C30	A	D	10L
C31	A	D	11L
C32	B	C	12L
C33	A	D	11L
C34	B	C	10K
C35	B	C	11K
C36	A	D	12L
C37	A	D	12K
C38	A	D	12K
C39	B	C	13K
C40	A	D	12K
C41	B	C	12K
C42	B	C	11K
C44	B	C	15N
C51	A	D	16G
C52	A	D	9M
C53	B	C	10K
C54	B	C	10K
C55	B	C	10L
C56	B	C	10K
C57	B	C	10N
C58	B	C	11N
C59	B	C	9N
C60	A	D	9N
C61	B	C	11O
C62	B	C	11N
C64	B	C	10M
C65	B	C	13N
C69	B	C	15N
C70	B	C	15N
C80	B	C	12M
C81	B	C	11M
C87	B	C	15N
C88	B	C	15N
C89	B	C	14N
C90	B	C	14N
C93	B	C	11N
C96	B	C	8E
C98	A	D	15H
C106	B	C	11N
C108	B	C	10L
C109	B	C	12N
C110	B	C	12N
C112	B	C	10L
C113	B	C	10L
C114	B	C	10L
C131	B	C	9K
C132	B	C	12J
C201	A	D	11G
C202	B	C	11G
C203	A	D	11G
C205	B	C	11G
C207	B	C	11G
C208	B	C	10G
C209	B	C	10G
C210	B	C	10G
C211	B	C	10G
C212	B	C	13G
C213	B	C	12G
C401	B	C	15O
C402	B	C	15O
C403	B	C	15O
C404	B	C	16O
C405	B	C	16O
C406	B	C	16O
C407	B	C	16O
C408	B	C	17O
C409	A	D	17O
C901	A	D	20O
C902	B	C	20N
C903	A	D	20O
C904	B	C	20N
C2001	A	D	14K
C2002	A	D	14L
C2003	A	D	15M
C2004	B	C	15M
C2005	A	D	14O
C2006	B	C	13N
C2007	A	D	13O
C2008	A	D	13O
C2009	B	C	12O
C2010	B	C	13N
C2011	A	D	13O
C2012	A	D	13N
C2051	A	D	9O
C2052	A	D	9O
C2053	B	C	9P
C2054	B	C	8O
C2055	A	D	10P
C2201	B	C	11J
C2202	B	C	13K
C2203	A	D	13K
C2204	B	C	10J
C2205	A	D	13K
C2206	A	D	13K
C2207	A	D	13J
C2208	A	D	14K
C2209	A	D	14K
C2210	A	D	15K
C2211	A	D	15K
C2212	A	D	15K
C2215	A	D	15K
C2216	A	D	15L
C2217	A	D	15L
C2218	A	D	15L
C2219	A	D	16L
C2220	A	D	16M
C2221	B	C	16M
C2222	A	D	16M
C2223	A	D	16M
C2224	B	C	16M
C2225	A	D	16M
C2226	A	D	15M
C2227	B	C	15M
C2251	A	D	15N
C2252	B	C	15M
C2253	B	C	16N
C2254	B	C	15N
C3001	B	C	7N
C3002	B	C	6M
C3003	A	D	5M
C3007	B	C	4I
C3008	B	C	20I
C3013	A	D	14E
C3015	B	C	13E
C3016	B	C	13F
C3017	B	C	13F
C3018	A	D	13G
C3019	B	C	12F
C3020	B	C	12F
C3022	B	C	13E
C3023	B	C	16B
C3024	A	D	4D
C3025	B	C	4D
C3026	A	D	2D
C3028	A	D	2D
C3029	B	C	6B
C3030	A	D	6B
C3035	B	C	12F
C3036	A	D	13G
C3041	B	C	9G
C3042	B	C	9G
C3043	A	D	13E
C3045	A	D	13E
C3048	B	C	13E
C3049	B	C	11I
C3050	B	C	10E
C3051	B	C	17J
C3052	B	C	17E
C3053	A	D	14E
C3054	B	C	17K
C3055	A	D	16B
C4001	B	C	7M
C4002	A	D	8G
C4004	A	D	8F
C4006	B	C	8F
C4007	B	C	10E
C4008	A	D	7F
C4009	B	C	9F
C4010	A	D	8F
C4011	B	C	7D
C4012	B	C	8F
C4014	B	C	8G
C4015	B	C	8F
C4016	A	D	6B
C4017	B	C	6B
C4019	B	C	10F
C4022	B	C	8F
C5001	A	D	2P
C5002	A	D	2N
C5003	A	D	4P
C5004	A	D	1I
C5006	A	D	2M
C5101	A	D	2M
C5102	A	D	2K
C5103	B	C	3L
C5104	A	D	3L
C5105	A	D	2L
C5106	A	D	4L
C5107	A	D	3L
C5110	A	D	2K
C5201	A	D	1H
C5202	A	D	3H
C5203	A	D	2G
C5204	A	D	3G
C5205	A	D	2H
C5206	A	D	4G
C5207	A	D	2F
C5208	A	D	1F
C5209	A	D	3G
C5301	A	D	2E
C5302	A	D	3E
C5303	A	D	3E
C5304	A	D	4E
C5305	B	C	1C
C5306	A	D	22H
C5307	A	D	22G
C5310	A	D	3E
C5312	A	D	2E
C5321	B	C	18A
C6005	A	D	21L
C6006	B	C	22M
C6007	A	D	21M
C6008	B	C	22M
C6012	A	D	21O
C6013	B	C	22O
C6014	B	C	21P
C6020	B	C	22N
C6021	B	C	22N
C6022	B	C	22N
C6023	B	C	22M
C6031	A	D	21L
C6033	B	C	22J
C6052	B	C	22O
C6053	B	C	22P
C6501	A	D	19H
C6502	B	C	19H
C6503	A	D	19H
C6504	A	D	18H
C6505	A	D	20H
C6506	A	D	17H
C6507	B	C	18H
C6508	A	D	17H
C6509	B	C	18H
C6510	A	D	17G
C6511	A	D	18F
C6512	A	D	19G
C6513	A	D	20G
C6514	A	D	20G
C6515	A	D	18G
C6516	A	D	19G
C6517	A	D	19G
C6518	A	D	18F
C6519	B	C	20K
C6520	B	C	21K
C6551	A	D	20J
C6552	B	C	20J
C6553	A	D	20I
C6554	B	C	20J
C6601	A	D	19H
C6602	A	D	20H
C6603	A	D	17H
C6604	A	D	20G
C6605	A	D	18G
C6650	B	C	21D
C6651	B	C	22E
C6652	B	C	22E
C6653	B	C	21D
C6654	A	D	21F
C7001	A	D	11B
C7002	A	D	9B
C7007	A	D	13B
C7008	B	C	13A
C7009	B	C	13B
C7010	B	C	13B
C7011	A	D	7B
C7012	B	C	9B
C7013	B	C	18B
C7014	B	C	17A
C7019	B	C	15A
C7020	B	C	15A
C7021	A	D	8A
C7201	A	D	19L
C7206	A	D	20L
CONNECTOR			
CN1	A	D	14O
CN2001	A	D	9O
CN2002	A	D	19L
CN3001	A	D	7L
CN3002	A	D	7P
CN3003	A	D	7N
CN3004	A	D	9F
CN3005	A	D	3D
CN3007	A	D	13P
CN5001	A	D	1O
CN6204	A	D	19M
CN6701	A	D	21I
CN7001	A	D	2C
CN7003	A	D	16A
CN7101	A	D	21C
CN7102	A	D	20L
DIODE			
D1	A	D	17P
D2	A	D	16P
D3	A	D	7F
D4	A	D	16G
D5	A	D	16G
D2001	A	D	17N
D2201	A	D	16L
D2202	A	D	16L
D3001	A	D	12H
D3002	A	D	5D
D3004	A	D	5C
D3005	A	D	5C
D3006	A	D	6D
D3007	B	C	16D
D3008	A	D	4E
D3009	B	C	11G
D3013	B	C	8P
D3015	B	C	17B
D4003	A	D	14H
D5001	B	C	3N
D5101	A	D	1M
D5102	A	D	1M
D5103	A	D	3L
D5104	A	D	3L
D5105	A	D	2K
D5201	A	D	1I
D5203	A	D	3I
D5204	A	D	3I
D5205	A	D	3I
D5206	A	D	2H
D5207	A	D	2I
D5208	A	D	3H
D5209	A	D	3H
D5210	A	D	4H
D5211	A	D	1H
D5301	A	D	3I
D5302	A	D	1E
D5303	A	D	1E
D5304	A	D	1F
D5305	A	D	3F
D5308	B	C	3F
D5309	A	D	4D
D5311	A	D	4D
D5312	B	C	4E
D5313	B	C	2E
D6002	A	D	21L
D6551	A	D	20J
D6650	B	C	21E
D7002	A	D	7A
D7003	A	D	8B
D7004	A	D	17A
D7005	A	D	17A
D7009	A	D	16A
D7010	A	D	16A
IC			
IC1	B	C	13M
IC3001	B	C	11E
IC3002	A	D	7N
IC3003	B	C	13E
IC3004	A	D	16C
IC5301	A	D	2E
IC6501	B	C	18G
IC6650	B	C	22E
IC7001	B	C	12B
IC7002	A	D	8A
JACK			
J1	A	D	20P
J2	A	D	21P
J6201	A	D	15P
J6202	A	D	16P
J7101	A	D	20A
COIL			
L1	A	D	16N
L2	A	D	10N
L3	A	D	9L
L4	A	D	9L
L5	A	D	12J
L11	A	D	11L
L13	A	D	10M
L15	A	D	9O
L16	A	D	10N
L17	A	D	11N
L24	A	D	11N
L27	A	D	10L
L28	A	D	12N
L201	A	D	11G
L203	A	D	12G
L204	A	D	13G
L401	A	D	16O
L402	A	D	17O
L901	A	D	20M
L2001	A	D	16N
L2251	A	D	16M
L5201	A	D	3G
L5202	A	D	1F
L5301	A	D	4D
L6001	A	D	21N
L6002	A	D	22H
L6003	A	D	21O
L6032	A	D	22K
L6050	A	D	21N
L7201	A	D	18L
TRANSISTOR			
Q1	B	C	15N
Q2	B	C	15N
Q3	B	C	14O
Q4	B	C	14N
Q5	B	C	10N
Q10	B	C	11K
Q11	B	C	11K
Q12	B	C	11K
Q13	B	C	11K
Q21	B	C	11M
Q22	B	C	9K
Q23	B	C	9L
Q25	B	C	10L
Q26	B	C	10K
Q27	B	C	10K
Q32	B	C	16H
Q35	B	C	14H
Q38	B	C	11N
Q39	B	C	10L
Q40	B	C	10L
Q41	B	C	10L
Q42	B	C	9L
Q201	B	C	10G
Q202	B	C	12G
Q401	B	C	15O
Q402	B	C	16O
Q403	B	C	17O
Q404	B	C	16N
Q405	B	C	16O
Q901	B	C	20N
Q902	B	C	20N
Q2001	B	C	11O
Q2002	B	C	11O
Q2003	B	C	10O
Q2051	B	C	9P
Q2052	B	C	7O
Q2053	B	C	7O
Q2054	B	C	7O
Q2055	B	C	7O
Q2101	B	C	13O
Q2251	B	C	17M
Q3001	A	D	4I
Q3002	A	D	19I
Q3003	B	C	6M
Q3004	B	C	6D
Q3005	B	C	17E
Q4001	B	C	7D
Q4002	B	C	5B
Q5101	A	D	2L
Q5102	A	D	2L
Q5301	A	D	3G
Q5302	B	C	3F
Q5303	A	D	22G
Q5306	A	D	3F
Q5307	B	C	2E
Q5308	B	C	3E
Q5310	B	C	4E
Q5311	B	C	3F
Q5312	A	D	1C
Q5318	B	C	2D
Q6030	B	C	22J
Q6031	B	C	22J
Q6501	B	C	20K
Q6502	B	C	20K
Q6551	A	D	20J
Q7201	A	D	19L
RESISTOR			
R1	B	C	12N
R2	B	C	12N
R3	B	C	10N
R5	B	C	9L
R6	B	C	11L
R7	B	C	11K
R8	B	C	12K
R9	B	C	12K
R12	A	D	10O
R21	B	C	16N
R22	B	C	17N
R23	B	C	10N
R24	B	C	10N
R36	B	C	12K
R37	B	C	10K
R38	B	C	10K
R39	B	C	11K
R41	B	C	10K
R42	B	C	10K
R43	B	C	11K
R44	B	C	10K
R45	B	C	11K
R46	B	C	11M
R48	B	C	9L
R49	B	C	9K
R50	B	C	9K
R66	A	D	16H
R67	A	D	8K
R69	B	C	9M
R71	B	C	16L
R75	B	C	11M
R76	B	C	8E
R77	A	D	14P
R78	B	C	12K
R79	B	C	12K
R90	B	C	11M
R92	B	C	12N
R93	B	C	12N
R95	B	C	9L
R103	B	C	11N
R104	B	C	11N
R106	B	C	12J
R107	B	C	9N
R108	B	C	10M
R109	B	C	10M
R201	B	C	11G
R202	B	C	11G
R203	B	C	10G
R204	B	C	10G
R205	B	C	10G
R206	B	C	10G
R207	B	C	10G
R210	B	C	14F
R211	B	C	13G
R401	B	C	15O
R402	B	C	16O
R403	B	C	16O
R404	B	C	16O
R405	B	C	16O
R406	B	C	16O
R407	B	C	16N
R408	B	C	16O
R901	B	C	21P
R902	B	C	21P
R903	B	C	20M
R904	A	D	20N
R905	B	C	20M
R911	B	C	20P
R912	B	C	21B
R2001	B	C	13K
R2002	B	C	13J
R2003	B	C	14K
R2004	B	C	14K
R2005	B	C	16K
R2006	B	C	16K
R2007	B	C	16K
R2008	B	C	15K
R2009	B	C	16K
R2010	B	C	16K
R2011	B	C	16M
R2012	B	C	17M
R2013	B	C	13N
R2014	B	C	13N
R2015	B	C	13O
R2016	B	C	12O
R2017	B	C	11O
R2018	B	C	10O
R2019	B	C	10O
R2051	B	C	9O
R2052	B	C	9P
R2053	B	C	9P
R2054	B	C	9P
R2055	B	C	9O
R2056	B	C	8O
R2057	B	C	7O
R2058	B	C	7O
R2059	B	C	7O
R2060	B	C	7O
R2101	B	C	14N
R2201	B	C	17L
R2202	B	C	14K
R2203	B	C	14K
R2204	B	C	15J
R2205	B	C	15K
R2206	B	C	14J
R2207	B	C	14J
R2213	B	C	16K
R2215	B	C	16K
R2217	B	C	16L
R2218	B	C	16L
R2219	B	C	16L
R2220	B	C	16L
R2222	B	C	15L
R2223	B	C	16L
R2224	B	C	16L
R2225	B	C	16L
R2230	B	C	15K
R2231	B	C	15K
R2232	B	C	17M
R2251	B	C	17M
R2601	B	C	20A
R2602	B	C	19B
R2603	B	C	20P
R3001	B	C	11D
R3002	B	C	11D
R3003	B	C	12D
R3004	B	C	12D
R3005	B	C	12D
R3007	B	C	14C
R3008	B	C	13D
R3009	B	C	13D
R3010	B	C	13D
R3011	B	C	13D
R3012	B	C	15D
R3013	B	C	14D
R3014	B	C	15D
R3015	B	C	15D
R3016	B	C	13D
R3017	B	C	13E
R3018	B	C	13E
R3019	B	C	15D
R3020	B	C	15D
R3021	B	C	14D
R3022	B	C	14E
R3026	B	C	13F
R3027	B	C	13F
R3029	B	C	13F
R3030	B	C	14F
R3031	B	C	14F
R3035	A	D	13H
R3043	B	C	13G
R3044	A	D	12G
R3046	A	D	12G
R3056	B	C	10G
R3057	B	C	9G
R3058	B	C	9J
R3060	B	C	9G
R3061	A	D	9G
R3062	A	D	9G
R3063	A	D	9G
R3078	B	C	9E
R3079	B	C	9E
R3080	B	C	9E
R3081	B	C	9E
R3082	B	C	9D
R3083	B	C	9D
R3084	B	C	9D
R3085	B	C	9D
R3086	B	C	9D
R3087	B	C	9D
R3088	B	C	10D
R3089	B	C	10D
R3090	A	D	8D
R3091	A	D	8D
R3092	B	C	9D
R3094	B	C	9D
R3096	B	C	10D
R3097	B	C	10D
R3098	B	C	10D
R3099	B	C	11D
R3100	B	C	11D
R3201	B	C	6M
R3202	B	C	5M
R3203	B	C	5M
R3204	B	C	5M
R3205	B	C	7G
R3206	B	C	9F
R3207	B	C	9F
R3208	B	C	9F
R3209	A	D	9H
R3210	B	C	7E
R3211	B	C	15C
R3212	B	C	17F
R3213	B	C	16F
R3214	B	C	7G
R3215	B	C	7G
R3216	B	C	5E
R3217	B	C	6D
R3219	B	C	9E
R3220	B	C	13E
R3222	B	C	13E
R3223	B	C	12F
R3224	B	C	12F
R3225	B	C	12F
R3226	B	C	17B
R3227	B	C	17B
R3232	A	D	7C
R3233	B	C	7D
R3234	B	C	6C
R3235	A	D	6P
R3236	B	C	15C
R3237	A	D	13I
R3238	A	D	13I
R3240	B	C	10C
R3241	B	C	10C
R4001	A	D	13G
R4002	B	C	7H
R4003	B	C	8F
R4004	B	C	14E
R4006	B	C	14C
R4010	B	C	10E
R4011	B	C	10F
R4012	B	C	9F
R4013	B	C	14C
R4018	B	C	7F
R4019	B	C	8G
R4020	B	C	8G
R4021	B	C	8G
R4022	B	C	6B
R4024	B	C	7G
R4025	B	C	7H
R5001	A	D	4P
R5101	A	D	3M
R5102	A	D	3M
R5103	A	D	3M
R5104	A	D	1L
R5106	A	D	1L
R5107	A	D	2K
R5108	B	C	3L
R5109	A	D	2L
R5110	B	C	3L
R5111	B	C	3M
R5112	B	C	1K
R5113	A	D	3L
R5301	A	D	7A
R5302	B	C	4G
R5303	B	C	4G
R5304	A	D	1F
R5305	B	C	4J
R5306	B	C	3D
R5307	B	C	1I
R5308	B	C	3G
R5309	B	C	3F
R5310	B	C	2F
R5311	B	C	2F
R5313	A	D	1C
R5314	B	C	3D
R5315	B	C	2E
R5316	B	C	4E
R5317	B	C	3F
R5318	B	C	3F
R5319	B	C	22F
R5323	B	C	5G
R5324	B	C	4D
R5325	B	C	3D
R5326	B	C	2D
R5327	B	C	3E
R5331	B	C	2E
R5333	A	D	2F
R5334	A	D	4F
R6020	B	C	21N
R6021	B	C	21M
R6022	B	C	21N
R6023	B	C	21M
R6025	B	C	15D
R6026	B	C	21N
R6030	B	C	21J
R6031	B	C	22K
R6032	B	C	21L
R6033	B	C	21L
R6034	B	C	21J
R6050	A	D	21N
R6051	B	C	19I
R6052	B	C	19I
R6053	B	C	19N
R6238	B	C	15P
R6239	B	C	16P
R6501	B	C	18H
R6502	B	C	18H
R6503	B	C	18H
R6504	B	C	18G
R6505	B	C	19G
R6506	B	C	18F
R6507	B	C	18F
R6508	B	C	20K
R6509	B	C	20K
R6510	B	C	20K
R6511	B	C	21K
R6512	B	C	17G
R6513	B	C	17G
R6514	B	C	17G
R6515	B	C	17G
R6551	B	C	20J
R6552	B	C	20J
R6602	B	C	19H
R6603	B	C	18H
R6604	B	C	18F
R6650	B	C	22F
R6651	B	C	22E
R6652	B	C	22E
R6653	B	C	21D
R6654	B	C	21E
R6655	B	C	21E
R6656	B	C	21E
R6657	B	C	21E
R6658	B	C	21E
R6659	B	C	21E
R6660	B	C	22E
R6661	B	C	21E
R7001	B	C	10B
R7002	B	C	10B
R7003	B	C	11B
R7004	B	C	11B
R7005	A	D	14A
R7006	B	C	6B
R7007	B	C	7B
R7008	B	C	7B
R7009	B	C	2C
R7010	B	C	2C
R7013	B	C	15A
R7014	B	C	8B
R7015	A	D	8B
R7017	A	D	10B
R7020	B	C	15A
R7021	B	C	17B
R7022	B	C	15B
R7023	B	C	6B
R7024	B	C	5B
R7025	B	C	5B
R7030	B	C	15B
R7031	B	C	6B
R7032	B	C	5B
R7033	B	C	2B
R7034	B	C	1B
R7035	B	C	2B
R7036	B	C	2B
R7037	B	C	3B
R7040	B	C	16A
R7041	B	C	15A
R7202	B	C	19L
R7203	B	C	19L
R7204	A	D	19L
SWITCH			
S3001	A	D	18C
S6050	A	D	18P
S7001	A	D	22B
S7002	A	D	18B
S7004	A	D	7B
S7006	A	D	6B
S7008	A	D	5B
S7010	A	D	4B
S7011	A	D	4B
S7012	A	D	3B
S7013	A	D	2B
S7014	A	D	2B
S7015	A	D	1B
S7016	A	D	17B
TESTPOINT			
TP106	A	D	6P
TP111	A	D	5P
TP2253	A	D	6P
TP4001	A	D	6P
TP7001	A	D	3A
TPGND	A	D	4A
OTHER			
CF6031	A	D	22K
CP4001	A	D	3F
CP5301	A	D	3D
CP5302	A	D	4F
DI7001	A	D	12A
F5001	A	D	1O
FC5001	A	D	2O
FC5002	A	D	1O
FW3001	A	D	21N
FW3002	A	D	20L
K2251	B	C	16N
K2252	B	C	16N
K2253	B	C	16N
K5101	A	D	3K
K5102	A	D	1M
LF5002	A	D	4O
PC0573	A	D	2G
PC3001	A	D	16F
PC3002	A	D	8G
PC5101	A	D	4L
SG5001	A	D	3P
T2051	A	D	9P
T5001	A	D	1K
TU6001	A	D	22P
VA5001	A	D	1P
VA5002	A	D	4P
VA5003	A	D	2P
VR6601	A	D	21H
X1	A	D	12L
X2	A	D	12L
X3001	A	D	13F
X3002	A	D	12G

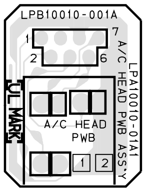
4.1 MAIN, A/C HEAD, MINI FRONT AND LOADING MOTOR CIRCUIT BOARDS [HR-J683M]

<03>MAIN
LPB10088-001F

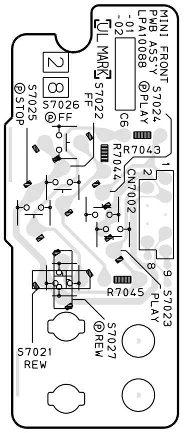

DANGEROUS VOLTAGE
PRIMARY
REG
SYS
DISP
NEUTRAL
LIVE
SG5001
VA5002
VA5003
VA5001
CN5001
LF5002
F5001
FC5002
FC5001
C5001
C5002
C5003
R5001
D5001
T5001
PC5101
Q3001
START
SENSOR
TAKE UP
PC3002
CN3001
CN3002
CN3003
CN3004
CN3005
CN2001
CN3007
CN7001
IC1
IC3001
IC3002
IC3003
IC5301
IC7001
IC7002
T2051
UL MARK
X1
X2
X3001
X3002
S7011
REW
CH+
S7010
REC
MENU
S7015
FF
S7014
PAUSE
PLAY
S7013
PLAY
REW
S7012
STOP/
EJECT
S7008
REVIEW
REC
S7006
CH+
OK
S7004
CH-
TP7001
TEST
TPGND
TP2253
A.PB.FM
TP106
PB.FM
TP4001
CTL.P
TP111
D.FF
V1
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
10
11
12
13


J6201
DET
J6202
BIT
J1
AV IN
J2
AV OUT
S6050
CN1
A/V
CN2002
CN6204
CN7102
CN6701
Q3002
END
SENSOR
TU
VR6601
SEPARATION
IC6501
DEMOD
PC3001
SUPPLY
IC3003
IC6650
S3001
REC.S
CN7101
IC3004
S7002
MENU
ⓅPAUSE
S7016
OK
ⓅVCR/TV
CN7003
AUDIO
IN[R]
AUDIO
IN[L]
J7101
VIDEO
IN
S7001
POWER

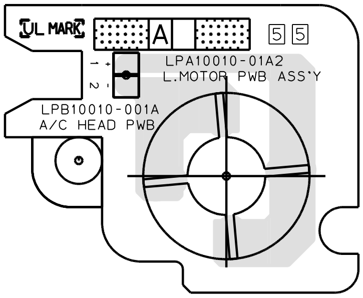
<12>A/C HEAD
LPB10010-001A


LPB10010-001A
LPA10010-01A1
A/C HEAD PWB ASS'Y
UL MARK
A/C HEAD
PWB
1
2
6
7

<28>MINI FRONT
LPB10088-001F

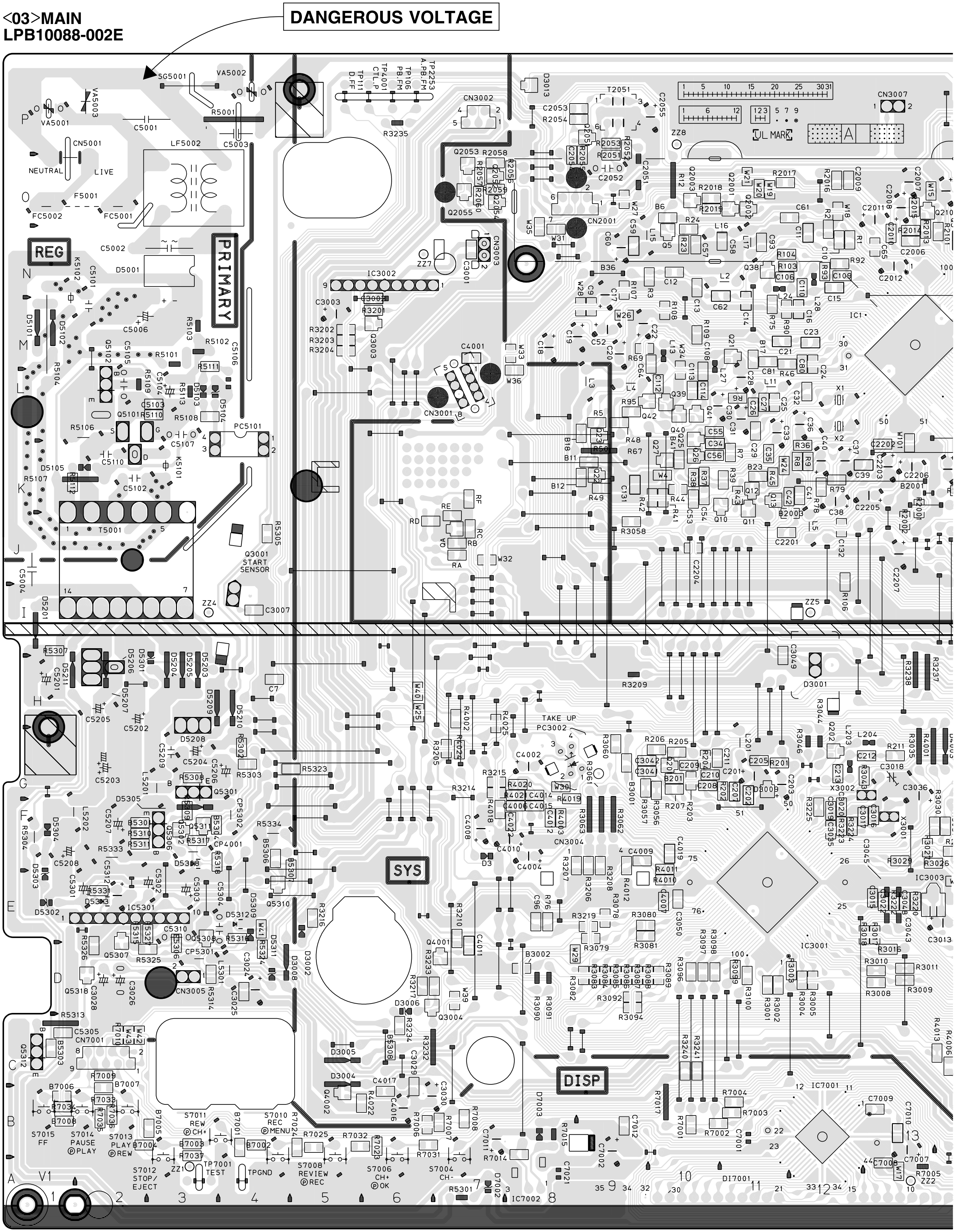

MINI FRONT
PWB ASS'Y
LPA10088
-01
-02
UL MARK
S7024
ⓅPLAY
S7022
FF
S7026
ⓅFF
S7025
ⓅSTOP
R7043
R7044
CN7002
R7045
S7023
PLAY
S7027
ⓅREW
S7021
REW

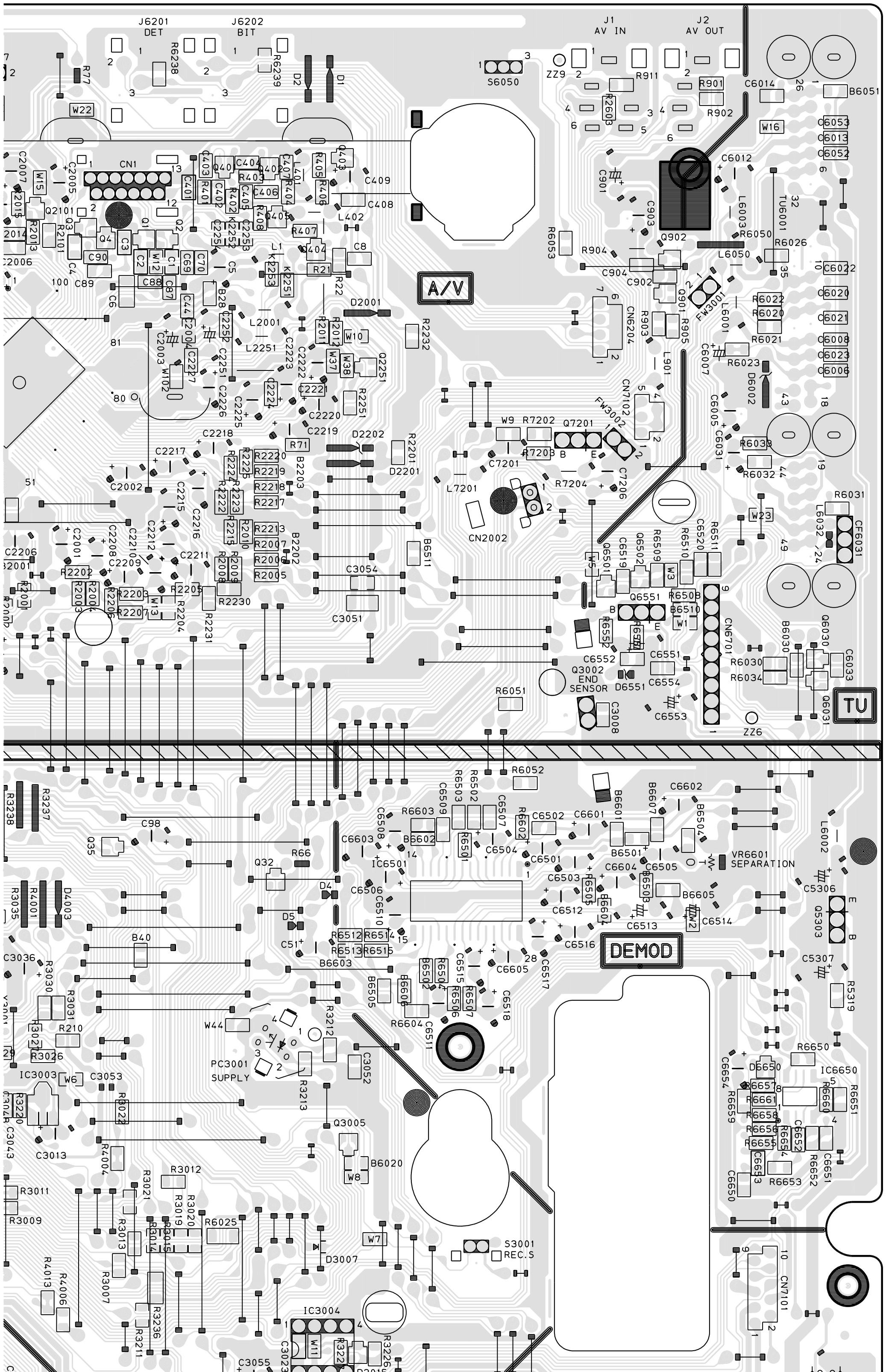
<55>LOADING MOTOR
LPB10010-001A


UL MARK
A
55
LPA10010-01A2
L.MOTOR PWB ASS'Y
LPB10010-001A
A/C HEAD PWB
1
2

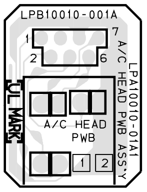
4.2 MAIN, A/C HEAD, MINI FRONT AND LOADING MOTOR CIRCUIT BOARDS [HR-J486EN/J486M]

<03>MAIN
LPB10088-002E

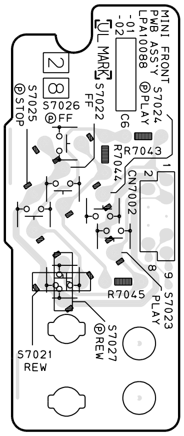

DANGEROUS VOLTAGE
PRIMARY
REG
SYS
DISP
NEUTRAL
LIVE
START SENSOR
TAKE UP
UL MARK
IC3001
IC7001
IC5301
IC3002
T5001
CN3001
CN3002
CN3003
CN3004
CN3005
CN3007
CN5001
CN7001
CN2001
S7015 FF
S7014 PAUSE ⓟPLAY
S7013 PLAY ⓟREW
S7012 STOP/ EJECT
S7011 REW ⓟCH+
S7010 REC ⓟMENU
S7008 REVIEW ⓟREC
S7006 CH+ ⓟOK
S7004 CH-
TP7001 TEST
TPGND
DI7001
V1
A
B
C
D
E
F
G
H
I
J
K
L
M
N
P
1
2
3
4
5
6
7
8
9
10
11
12
13


J6201
DET
J6202
BIT
J1
AV IN
J2
AV OUT
S6050
CN1
A/V
D2001
D2202
Q7201
CN2002
FW3001
FW3002
CN7102
CN6204
Q902
L6050
CN6701
Q3002
END
SENSOR
TU
ZZ6
IC6501
VR6601
SEPARATION
DEMOD
PC3001
SUPPLY
IC3003
IC3004
IC6650
S3001
REC.S
CN7101
J7101
S7002
MENU
PAUSE
S7016
OK
VCR/TV
AUDIO
IN[R]
AUDIO
IN[L]
VIDEO
IN
S7001
POWER
CN7003
ZZ3
13
14
15
16
17
18
19
20
21
22

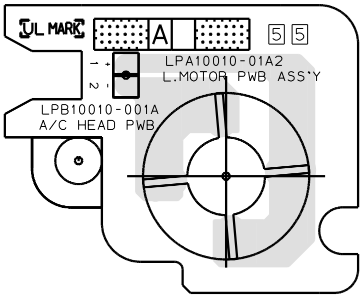
<12>A/C HEAD
LPB10010-001A


LPB10010-001A
1
2
6
7
LPA10010-01A1
A/C HEAD PWB ASS'Y
UL MARK
A/C HEAD
PWB
1
2

<28>MINI FRONT
LPB10088-002E


MINI FRONT
PWB ASS'Y
LPA10088
-01
-02
UL MARK
2
8
S7024
PLAY
S7022
FF
S7026
FF
S7025
STOP
R7043
R7044
CN7002
R7045
S7023
PLAY
S7027
REW
S7021
REW

<55>LOADING MOTOR
LPB10010-001A


UL MARK
A
55
LPA10010-01A2
L.MOTOR PWB ASS'Y
1
2
LPB10010-001A
A/C HEAD PWB

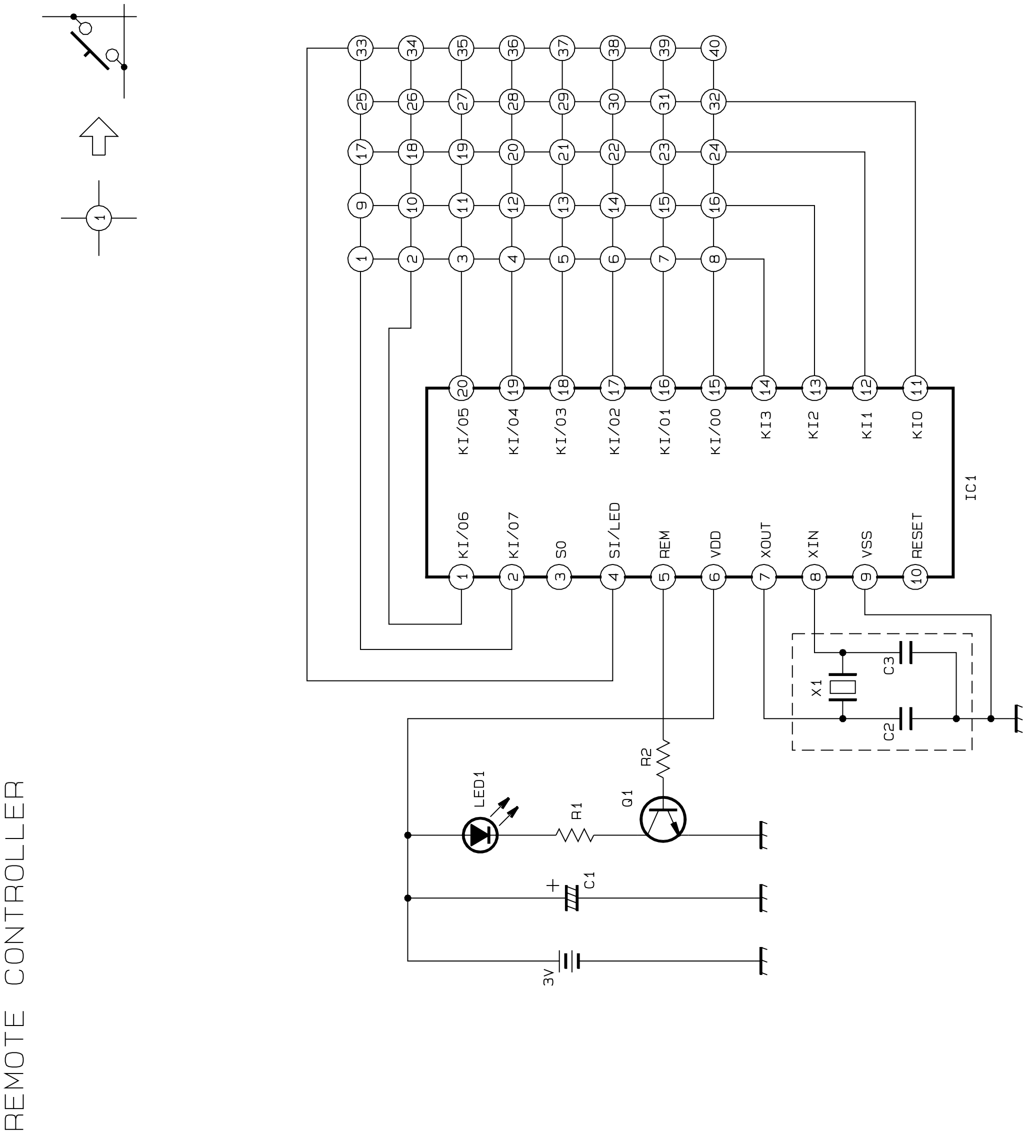
COMPONENT PARTS LOCATION GUIDE ＜MAIN＞ [HR-J486EN/J486M]

REF.NO.	LOCATION		
CAPACITOR			
C1	B	C	15N
C2	B	C	15N
C3	B	C	14N
C4	B	C	14N
C5	A	D	15N
C6	B	C	14N
C7	B	C	4H
C8	B	C	17N
C9	B	C	9M
C10	B	C	12N
C11	B	C	12N
C12	B	C	10N
C13	B	C	10N
C14	B	C	11M
C15	B	C	12N
C16	B	C	12M
C17	A	D	9M
C18	A	D	8M
C19	A	D	9M
C20	A	D	9M
C21	B	C	11M
C22	A	D	9M
C23	B	C	12M
C24	B	C	12M
C25	B	C	11L
C26	B	C	11L
C27	B	C	11L
C28	A	D	11L
C29	B	C	11L
C30	A	D	10L
C31	A	D	11L
C32	B	C	12L
C33	A	D	11L
C34	B	C	10K
C35	B	C	11K
C36	A	D	12L
C37	A	D	12K
C38	A	D	12K
C39	B	C	13K
C40	A	D	12K
C41	B	C	12K
C42	B	C	11K
C44	B	C	15N
C51	A	D	16G
C52	A	D	9M
C53	B	C	10K
C54	B	C	10K
C55	B	C	10L
C56	B	C	10K
C57	B	C	10N
C58	B	C	11N
C59	B	C	9N
C60	A	D	9N
C61	B	C	11O
C62	B	C	11N
C64	B	C	10M
C65	B	C	13N
C69	B	C	15N
C70	B	C	15N
C80	B	C	12M
C81	B	C	11M
C87	B	C	15N
C88	B	C	15N
C89	B	C	14N
C90	B	C	14N
C93	B	C	11N
C96	B	C	8E
C98	A	D	15H
C106	B	C	11N
C108	B	C	10L
C109	B	C	12N
C110	B	C	12N
C112	B	C	10L
C113	B	C	10L
C114	B	C	10L
C131	B	C	9K
C132	B	C	12J
C201	A	D	11G
C202	B	C	11G
C203	A	D	11G
C205	B	C	11G
C207	B	C	11G
C208	B	C	10G
C209	B	C	10G
C210	B	C	10G
C211	B	C	10G
C212	B	C	13G
C213	B	C	12G
C401	B	C	15O
C402	B	C	15O
C403	B	C	15O
C404	B	C	16O
C405	B	C	16O
C406	B	C	16O
C407	B	C	16O
C408	B	C	17O
C409	A	D	17O
C901	A	D	20O
C902	B	C	20N
C903	A	D	20O
C904	B	C	20N
C2001	A	D	14K
C2002	A	D	14L
C2003	A	D	15M
C2004	B	C	15M
C2005	A	D	14O
C2006	B	C	13N
C2007	A	D	13O
C2008	A	D	13O
C2009	B	C	12O
C2010	B	C	13N
C2011	A	D	13O
C2012	A	D	13N
C2051	A	D	9O
C2052	A	D	9O
C2053	B	C	9P
C2054	B	C	8O
C2055	A	D	10P
C2201	B	C	11J
C2202	B	C	13K
C2203	A	D	13K
C2204	B	C	10J
C2205	A	D	13K
C2206	A	D	13K
C2207	A	D	13J
C2208	A	D	14K
C2209	A	D	14K
C2210	A	D	15K
C2211	A	D	15K
C2212	A	D	15K
C2215	A	D	15K
C2216	A	D	15L
C2217	A	D	15L
C2218	A	D	15L
C2219	A	D	16L
C2220	A	D	16M
C2221	B	C	16M
C2222	A	D	16M
C2223	A	D	16M
C2224	B	C	16M
C2225	A	D	16M
C2226	A	D	15M
C2227	B	C	15M
C2251	A	D	15N
C2252	B	C	15M
C2253	B	C	16N
C2254	B	C	15N
C3001	B	C	7N
C3002	B	C	6M
C3003	A	D	5M
C3007	B	C	4I
C3008	B	C	20I
C3013	A	D	14E
C3015	B	C	13E
C3016	B	C	13F
C3017	B	C	13F
C3018	A	D	13G
C3019	B	C	12F
C3020	B	C	12F
C3022	B	C	13E
C3023	B	C	16B
C3024	A	D	4D
C3025	B	C	4D
C3026	A	D	2D
C3028	A	D	2D
C3029	B	C	6B
C3030	A	D	6B
C3035	B	C	12F
C3036	A	D	13G
C3041	B	C	9G
C3042	B	C	9G
C3043	A	D	13E
C3045	A	D	13E
C3048	B	C	13E
C3049	B	C	11I
C3050	B	C	10E
C3051	B	C	17J
C3052	B	C	17E
C3053	A	D	14E
C3054	B	C	17K
C3055	A	D	16B
C4001	B	C	7M
C4002	A	D	8G
C4004	A	D	8F
C4006	B	C	8F
C4007	B	C	10E
C4008	A	D	7F
C4009	B	C	9F
C4010	A	D	8F
C4011	B	C	7D
C4012	B	C	8F
C4014	B	C	8G
C4015	B	C	8F
C4016	A	D	6B
C4017	B	C	6B
C4019	B	C	10F
C4022	B	C	8F
C5001	A	D	2P
C5002	A	D	2N
C5003	A	D	4P
C5004	A	D	1I
C5006	A	D	2M
C5101	A	D	2M
C5102	A	D	2K
C5103	B	C	3L
C5104	A	D	3L
C5105	A	D	2L
C5106	A	D	4L
C5107	A	D	3L
C5110	A	D	2K
C5201	A	D	1H
C5202	A	D	3H
C5203	A	D	2G
C5204	A	D	3G
C5205	A	D	2H
C5206	A	D	4G
C5207	A	D	2F
C5208	A	D	1F
C5209	A	D	3G
C5301	A	D	2E
C5302	A	D	3E
C5303	A	D	3E
C5304	A	D	4E
C5305	B	C	1C
C5306	A	D	22H
C5307	A	D	22G
C5310	A	D	3E
C5312	A	D	2E
C5321	B	C	18A
C6005	A	D	21L
C6006	B	C	22M
C6007	A	D	21M
C6008	B	C	22M
C6012	A	D	21O
C6013	B	C	22O
C6014	B	C	21P
C6020	B	C	22N
C6021	B	C	22N
C6022	B	C	22N
C6023	B	C	22M
C6031	A	D	21L
C6033	B	C	22J
C6052	B	C	22O
C6053	B	C	22P
C6501	A	D	19H
C6502	B	C	19H
C6503	A	D	19H
C6504	A	D	18H
C6505	A	D	20H
C6506	A	D	17H
C6507	B	C	18H
C6508	A	D	17H
C6509	B	C	18H
C6510	A	D	17G
C6511	A	D	18F
C6512	A	D	19G
C6513	A	D	20G
C6514	A	D	20G
C6515	A	D	18G
C6516	A	D	19G
C6517	A	D	19G
C6518	A	D	18F
C6519	B	C	20K
C6520	B	C	21K
C6551	A	D	20J
C6552	B	C	20J
C6553	A	D	20I
C6554	B	C	20J
C6601	A	D	19H
C6602	A	D	20H
C6603	A	D	17H
C6604	A	D	20G
C6605	A	D	18G
C6650	B	C	21D
C6651	B	C	22E
C6652	B	C	22E
C6653	B	C	21D
C6654	A	D	21F
C7001	A	D	11B
C7002	A	D	9B
C7007	A	D	13B
C7008	B	C	13A
C7009	B	C	13B
C7010	B	C	13B
C7011	A	D	7B
C7012	B	C	9B
C7013	B	C	18B
C7014	B	C	17A
C7019	B	C	15A
C7020	B	C	15A
C7021	A	D	8A
C7201	A	D	19L
C7206	A	D	20L
CONNECTOR			
CN1	A	D	14O
CN2001	A	D	9O
CN2002	A	D	19L
CN3001	A	D	7L
CN3002	A	D	7P
CN3003	A	D	7N
CN3004	A	D	9F
CN3005	A	D	3D
CN3007	A	D	13P
CN5001	A	D	1O
CN6204	A	D	19M
CN6701	A	D	21I
CN7001	A	D	2C
CN7003	A	D	16A
CN7101	A	D	21C
CN7102	A	D	20L
DIODE			
D1	A	D	17P
D2	A	D	16P
D3	A	D	7F
D4	A	D	16G
D5	A	D	16G
D2001	A	D	17N
D2201	A	D	16L
D2202	A	D	16L
D3001	A	D	12H
D3002	A	D	5D
D3004	A	D	5C
D3005	A	D	5C
D3006	A	D	6D
D3007	B	C	16D
D3008	A	D	4E
D3009	B	C	11G
D3013	B	C	8P
D3015	B	C	17B
D4003	A	D	14H
D5001	B	C	3N
D5101	A	D	1M
D5102	A	D	1M
D5103	A	D	3L
D5104	A	D	3L
D5105	A	D	2K
D5201	A	D	1I
D5203	A	D	3I
D5204	A	D	3I
D5205	A	D	3I
D5206	A	D	2H
D5207	A	D	2I
D5208	A	D	3H
D5209	A	D	3H
D5210	A	D	4H
D5211	A	D	1H
D5301	A	D	3I
D5302	A	D	1E
D5303	A	D	1E
D5304	A	D	1F
D5305	A	D	3F
D5308	B	C	3F
D5309	A	D	4D
D5311	A	D	4D
D5312	B	C	4E
D5313	B	C	2E
D6002	A	D	21L
D6551	A	D	20J
D6650	B	C	21E
D7002	A	D	7A
D7003	A	D	8B
D7004	A	D	17A
D7005	A	D	17A
D7009	A	D	16A
D7010	A	D	16A
IC			
IC1	B	C	13M
IC3001	B	C	11E
IC3002	A	D	7N
IC3003	B	C	13E
IC3004	A	D	16C
IC5301	A	D	2E
IC6501	B	C	18G
IC6650	B	C	22E
IC7001	B	C	12B
IC7002	A	D	8A
JACK			
J1	A	D	20P
J2	A	D	21P
J6201	A	D	15P
J6202	A	D	16P
J7101	A	D	20A
COIL			
L1	A	D	16N
L2	A	D	10N
L3	A	D	9L
L4	A	D	9L
L5	A	D	12J
L11	A	D	11L
L13	A	D	10M
L15	A	D	9O
L16	A	D	10N
L17	A	D	11N
L24	A	D	11N
L27	A	D	10L
L28	A	D	12N
L201	A	D	11G
L203	A	D	12G
L204	A	D	13G
L401	A	D	16O
L402	A	D	17O
L901	A	D	20M
L2001	A	D	16N
L2251	A	D	16M
L5201	A	D	3G
L5202	A	D	1F
L5301	A	D	4D
L6001	A	D	21N
L6002	A	D	22H
L6003	A	D	21O
L6032	A	D	22K
L6050	A	D	21N
L7201	A	D	18L
TRANSISTOR			
Q1	B	C	15N
Q2	B	C	15N
Q3	B	C	14O
Q4	B	C	14N
Q5	B	C	10N
Q10	B	C	11K
Q11	B	C	11K
Q12	B	C	11K
Q13	B	C	11K
Q21	B	C	11M
Q22	B	C	9K
Q23	B	C	9L
Q25	B	C	10L
Q26	B	C	10K
Q27	B	C	10K
Q32	B	C	16H
Q35	B	C	14H
Q38	B	C	11N
Q39	B	C	10L
Q40	B	C	10L
Q41	B	C	10L
Q42	B	C	9L
Q201	B	C	10G
Q202	B	C	12G
Q401	B	C	15O
Q402	B	C	16O
Q403	B	C	17O
Q404	B	C	16N
Q405	B	C	16O
Q901	B	C	20N
Q902	B	C	20N
Q2001	B	C	11O
Q2002	B	C	11O
Q2003	B	C	10O
Q2051	B	C	9P
Q2052	B	C	7O
Q2053	B	C	7O
Q2054	B	C	7O
Q2055	B	C	7O
Q2101	B	C	13O
Q2251	B	C	17M
Q3001	A	D	4I
Q3002	A	D	19I
Q3003	B	C	6M
Q3004	B	C	6D
Q3005	B	C	17E
Q4001	B	C	7D
Q4002	B	C	5B
Q5101	A	D	2L
Q5102	A	D	2L
Q5301	A	D	3G
Q5302	B	C	3F
Q5303	A	D	22G
Q5306	A	D	3F
Q5307	B	C	2E
Q5308	B	C	3E
Q5310	B	C	4E
Q5311	B	C	3F
Q5312	A	D	1C
Q5318	B	C	2D
Q6030	B	C	22J
Q6031	B	C	22J
Q6501	B	C	20K
Q6502	B	C	20K
Q6551	A	D	20J
Q7201	A	D	19L
RESISTOR			
R1	B	C	12N
R2	B	C	12N
R3	B	C	10N
R5	B	C	9L
R6	B	C	11L
R7	B	C	11K
R8	B	C	12K
R9	B	C	12K
R12	A	D	10O
R21	B	C	16N
R22	B	C	17N
R23	B	C	10N
R24	B	C	10N
R36	B	C	12K
R37	B	C	10K
R38	B	C	10K
R39	B	C	11K
R41	B	C	10K
R42	B	C	10K
R43	B	C	11K
R44	B	C	10K
R45	B	C	11K
R46	B	C	11M
R48	B	C	9L
R49	B	C	9K
R50	B	C	9K
R66	A	D	16H
R67	A	D	8K
R69	B	C	9M
R71	B	C	16L
R75	B	C	11M
R76	B	C	8E
R77	A	D	14P
R78	B	C	12K
R79	B	C	12K
R90	B	C	11M
R92	B	C	12N
R93	B	C	12N
R95	B	C	9L
R103	B	C	11N
R104	B	C	11N
R106	B	C	12J
R107	B	C	9N
R108	B	C	10M
R109	B	C	10M
R201	B	C	11G
R202	B	C	11G
R203	B	C	10G
R204	B	C	10G
R205	B	C	10G
R206	B	C	10G
R207	B	C	10G
R210	B	C	14F
R211	B	C	13G
R401	B	C	15O
R402	B	C	16O
R403	B	C	16O
R404	B	C	16O
R405	B	C	16O
R406	B	C	16O
R407	B	C	16N
R408	B	C	16O
R901	B	C	21P
R902	B	C	21P
R903	B	C	20M
R904	A	D	20N
R905	B	C	20M
R911	B	C	20P
R912	B	C	21B
R2001	B	C	13K
R2002	B	C	13J
R2003	B	C	14K
R2004	B	C	14K
R2005	B	C	16K
R2006	B	C	16K
R2007	B	C	16K
R2008	B	C	15K
R2009	B	C	16K
R2010	B	C	16K
R2011	B	C	16M
R2012	B	C	17M
R2013	B	C	13N
R2014	B	C	13N
R2015	B	C	13O
R2016	B	C	12O
R2017	B	C	11O
R2018	B	C	10O
R2019	B	C	10O
R2051	B	C	9O
R2052	B	C	9P
R2053	B	C	9P
R2054	B	C	9P
R2055	B	C	9O
R2056	B	C	8O
R2057	B	C	7O
R2058	B	C	7O
R2059	B	C	7O
R2060	B	C	7O
R2101	B	C	14N
R2201	B	C	17L
R2202	B	C	14K
R2203	B	C	14K
R2204	B	C	15J
R2205	B	C	15K
R2206	B	C	14J
R2207	B	C	14J
R2213	B	C	16K
R2215	B	C	16K
R2217	B	C	16L
R2218	B	C	16L
R2219	B	C	16L
R2220	B	C	16L
R2222	B	C	15L
R2223	B	C	16L
R2224	B	C	16L
R2225	B	C	16L
R2230	B	C	15K
R2231	B	C	15K
R2232	B	C	17M
R2251	B	C	17M
R2601	B	C	20A
R2602	B	C	19B
R2603	B	C	20P
R3001	B	C	11D
R3002	B	C	11D
R3003	B	C	12D
R3004	B	C	12D
R3005	B	C	12D
R3007	B	C	14C
R3008	B	C	13D
R3009	B	C	13D
R3010	B	C	13D
R3011	B	C	13D
R3012	B	C	15D
R3013	B	C	14D
R3014	B	C	15D
R3015	B	C	15D
R3016	B	C	13D
R3017	B	C	13E
R3018	B	C	13E
R3019	B	C	15D
R3020	B	C	15D
R3021	B	C	14D
R3022	B	C	14E
R3026	B	C	13F
R3027	B	C	13F
R3029	B	C	13F
R3030	B	C	14F
R3031	B	C	14F
R3035	A	D	13H
R3043	B	C	13G
R3044	A	D	12G
R3046	A	D	12G
R3056	B	C	10G
R3057	B	C	9G
R3058	B	C	9J
R3060	B	C	9G
R3061	A	D	9G
R3062	A	D	9G
R3063	A	D	9G
R3078	B	C	9E
R3079	B	C	9E
R3080	B	C	9E
R3081	B	C	9E
R3082	B	C	9D
R3083	B	C	9D
R3084	B	C	9D
R3085	B	C	9D
R3086	B	C	9D
R3087	B	C	9D
R3088	B	C	10D
R3089	B	C	10D
R3090	A	D	8D
R3091	A	D	8D
R3092	B	C	9D
R3094	B	C	9D
R3096	B	C	10D
R3097	B	C	10D
R3098	B	C	10D
R3099	B	C	11D
R3100	B	C	11D
R3201	B	C	6M
R3202	B	C	5M
R3203	B	C	5M
R3204	B	C	5M
R3205	B	C	7G
R3206	B	C	9F
R3207	B	C	9F
R3208	B	C	9F
R3209	A	D	9H
R3210	B	C	7E
R3211	B	C	15C
R3212	B	C	17F
R3213	B	C	16F
R3214	B	C	7G
R3215	B	C	7G
R3216	B	C	5E
R3217	B	C	6D
R3219	B	C	9E
R3220	B	C	13E
R3222	B	C	13E
R3223	B	C	12F
R3224	B	C	12F
R3225	B	C	12F
R3226	B	C	17B
R3227	B	C	17B
R3232	A	D	7C
R3233	B	C	7D
R3234	B	C	6C
R3235	A	D	6P
R3236	B	C	15C
R3237	A	D	13I
R3238	A	D	13I
R3240	B	C	10C
R3241	B	C	10C
R4001	A	D	13G
R4002	B	C	7H
R4003	B	C	8F
R4004	B	C	14E
R4006	B	C	14C
R4010	B	C	10E
R4011	B	C	10F
R4012	B	C	9F
R4013	B	C	14C
R4018	B	C	7F
R4019	B	C	8G
R4020	B	C	8G
R4021	B	C	8G
R4022	B	C	6B
R4024	B	C	7G
R4025	B	C	7H
R5001	A	D	4P
R5101	A	D	3M
R5102	A	D	3M
R5103	A	D	3M
R5104	A	D	1L
R5106	A	D	1L
R5107	A	D	2K
R5108	B	C	3L
R5109	A	D	2L
R5110	B	C	3L
R5111	B	C	3M
R5112	B	C	1K
R5113	A	D	3L
R5301	A	D	7A
R5302	B	C	4G
R5303	B	C	4G
R5304	A	D	1F
R5305	B	C	4J
R5306	B	C	3D
R5307	B	C	1I
R5308	B	C	3G
R5309	B	C	3F
R5310	B	C	2F
R5311	B	C	2F
R5313	A	D	1C
R5314	B	C	3D
R5315	B	C	2E
R5316	B	C	4E
R5317	B	C	3F
R5318	B	C	3F
R5319	B	C	22F
R5323	B	C	5G
R5324	B	C	4D
R5325	B	C	3D
R5326	B	C	2D
R5327	B	C	3E
R5331	B	C	2E
R5333	A	D	2F
R5334	A	D	4F
R6020	B	C	21N
R6021	B	C	21M
R6022	B	C	21N
R6023	B	C	21M
R6025	B	C	15D
R6026	B	C	21N
R6030	B	C	21J
R6031	B	C	22K
R6032	B	C	21L
R6033	B	C	21L
R6034	B	C	21J
R6050	A	D	21N
R6051	B	C	19I
R6052	B	C	19I
R6053	B	C	19N
R6238	B	C	15P
R6239	B	C	16P
R6501	B	C	18H
R6502	B	C	18H
R6503	B	C	18H
R6504	B	C	18G
R6505	B	C	19G
R6506	B	C	18F
R6507	B	C	18F
R6508	B	C	20K
R6509	B	C	20K
R6510	B	C	20K
R6511	B	C	21K
R6512	B	C	17G
R6513	B	C	17G
R6514	B	C	17G
R6515	B	C	17G
R6551	B	C	20J
R6552	B	C	20J
R6602	B	C	19H
R6603	B	C	18H
R6604	B	C	18F
R6650	B	C	22F
R6651	B	C	22E
R6652	B	C	22E
R6653	B	C	21D
R6654	B	C	21E
R6655	B	C	21E
R6656	B	C	21E
R6657	B	C	21E
R6658	B	C	21E
R6659	B	C	21E
R6660	B	C	22E
R6661	B	C	21E
R7001	B	C	10B
R7002	B	C	10B
R7003	B	C	11B
R7004	B	C	11B
R7005	A	D	14A
R7006	B	C	6B
R7007	B	C	7B
R7008	B	C	7B
R7009	B	C	2C
R7010	B	C	2C
R7013	B	C	15A
R7014	B	C	8B
R7015	A	D	8B
R7017	A	D	10B
R7020	B	C	15A
R7021	B	C	17B
R7022	B	C	15B
R7023	B	C	6B
R7024	B	C	5B
R7025	B	C	5B
R7030	B	C	15B
R7031	B	C	6B
R7032	B	C	5B
R7033	B	C	2B
R7034	B	C	1B
R7035	B	C	2B
R7036	B	C	2B
R7037	B	C	3B
R7040	B	C	16A
R7041	B	C	15A
R7202	B	C	19L
R7203	B	C	19L
R7204	A	D	19L
SWITCH			
S3001	A	D	18C
S6050	A	D	18P
S7001	A	D	22B
S7002	A	D	18B
S7004	A	D	7B
S7006	A	D	6B
S7008	A	D	5B
S7010	A	D	4B
S7011	A	D	4B
S7012	A	D	3B
S7013	A	D	2B
S7014	A	D	2B
S7015	A	D	1B
S7016	A	D	17B
TESTPOINT			
TP106	A	D	6P
TP111	A	D	5P
TP2253	A	D	6P
TP4001	A	D	6P
TP7001	A	D	3A
TPGND	A	D	4A
OTHER			
CF6031	A	D	22K
CP4001	A	D	3F
CP5301	A	D	3D
CP5302	A	D	4F
DI7001	A	D	12A
F5001	A	D	1O
FC5001	A	D	2O
FC5002	A	D	1O
FW3001	A	D	21N
FW3002	A	D	20L
K2251	B	C	16N
K2252	B	C	16N
K2253	B	C	16N
K5101	A	D	3K
K5102	A	D	1M
LF5002	A	D	4O
PC0573	A	D	2G
PC3001	A	D	16F
PC3002	A	D	8G
PC5101	A	D	4L
SG5001	A	D	3P
T2051	A	D	9P
T5001	A	D	1K
TU6001	A	D	22P
VA5001	A	D	1P
VA5002	A	D	4P
VA5003	A	D	2P
VR6601	A	D	21H
X1	A	D	12L
X2	A	D	12L
X3001	A	D	13F
X3002	A	D	12G

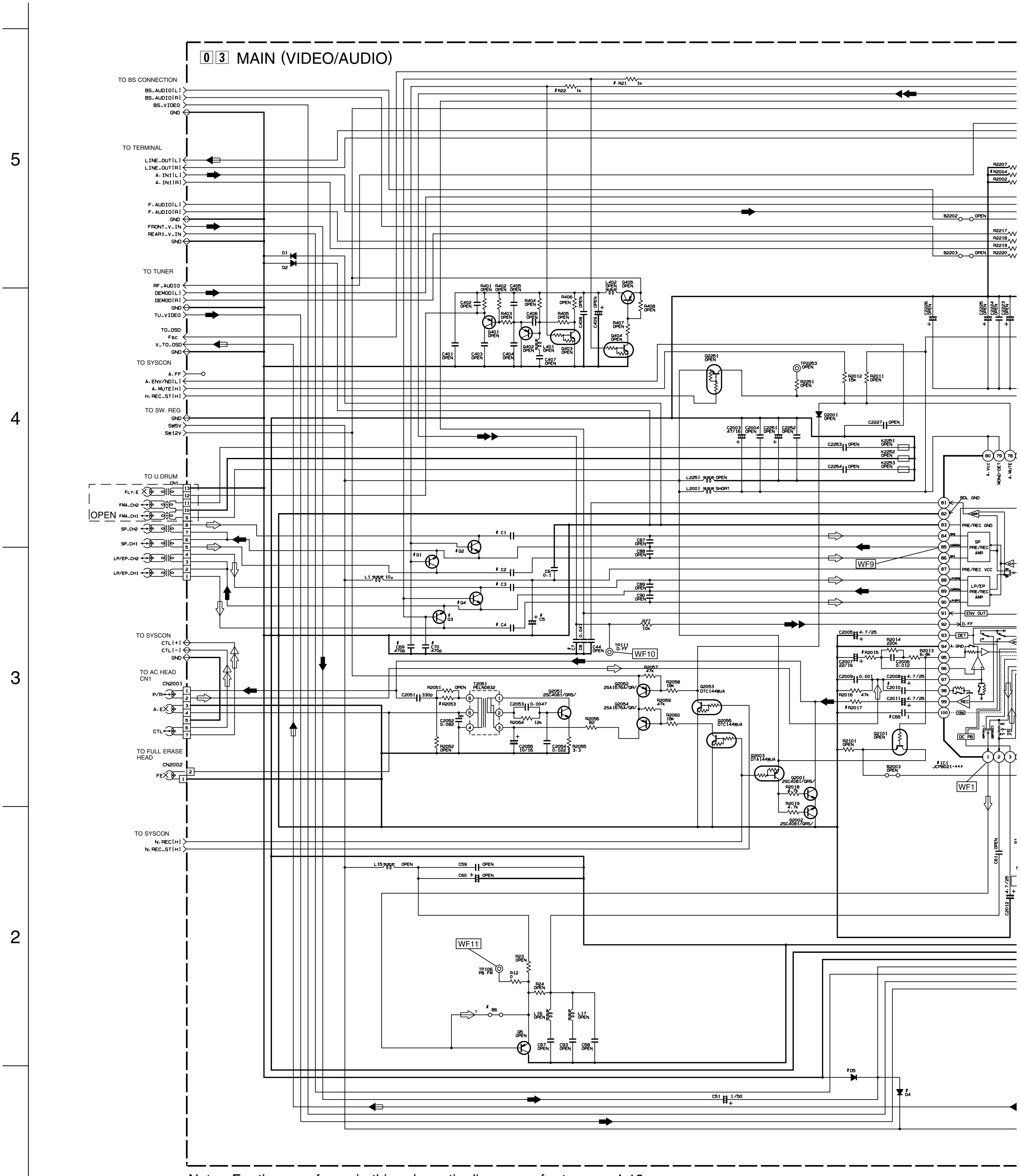
4.3 REMOTE CONTROL SCHEMATIC DIAGRAM [HR-J486M/J683M]

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

Key No.	Key Name
1	TV
2	3
3	6
4	TIMER
5	STOP+
6	0 AUX
7	REW ◀◀
8	REC ●
9	DISPLAY
10	TV/VCR
11	SP/EP
12	START+
13	DATE ▲
14	DATE ▼
15	▶ PLAY
16	■ STOP
17	1
18	4
19	7
20	ENTER
21	CH ▲
22	CH ▼
23	▲ TV CH+
24	▼ TV CH-
25	2
26	5
27	8 DAILY
28	CANCEL
29	MENU
30	OK
31	FF ▶▶
32	II PAUSE
33	STOP-
34	◀ ◀◀ TV VOL-
35	▶ ▶▶ TV VOL+
36	START-
37	POWER
38	PROG.
39	PROG. CHECK
40	9 WEEKLY
8+15	●REC+▶PLAY
8+32	●REC+II PAUSE
1+10	TV+TV/VCR
1+11	TV+SP/EP
1+23	TV+CH+
1+24	TV+CH-
1+34	TV+VOL-
1+35	TV+VOL+
1+37	TV+POWER


REMOTE CONTROLLER
IC1
KI/05
KI/04
KI/03
KI/02
KI/01
KI/00
KI3
KI2
KI1
KI0
KI/06
KI/07
SO
SI/LED
REM
VDD
XOUT
XIN
VSS
RESET
X1
C3
C2
R2
Q1
R1
LED1
C1
3V
A
B
C
D
1
2
3
4
5

4.4 VIDEO/AUDIO SCHEMATIC DIAGRAM [HR-J486EN/J486M]


03 MAIN (VIDEO/AUDIO)
TO BS CONNECTION
BS_AUDIO(L)
BS_AUDIO(R)
BS_VIDEO
GND
TO TERMINAL
LINE_OUT(L)
LINE_OUT(R)
A.IN1(L)
A.IN1(R)
F.AUDIO(L)
F.AUDIO(R)
GND
FRONT_V_IN
REAR1_V_IN
GND
TO TUNER
RF_AUDIO
DEMOD(L)
DEMOD(R)
GND
TU_VIDEO
TO_OSD
Fsc
V_TO_OSD
GND
TO SYSCON
A.FF
A.ENV/ND(L)
A.MUTE(H)
H.REC_ST(H)
TO SW. REG
GND
SW5V
SW12V
TO U.DRUM
CN1
FLY.E
FMA_CH2
FMA_CH1
SP_CH2
SP_CH1
LP/EP_CH2
LP/EP_CH1
OPEN
TO SYSCON
CTL(+)
CTL(-)
GND
TO AC HEAD
CN1
CN2001
P/R
A.E
CTL
TO FULL ERASE HEAD
CN2002
FE
TO SYSCON
N.REC(H)
N.REC_ST(H)
WF9
WF10
WF11
WF1
TP111 D.FF
TP106 PB FM
TP2253
IC1 JCP8021-***
T2051 PELN0832
Q2051 2SC4081/QRS/
Q2052 2SA1576A/QR/
Q2054 2SA1576A/QR/
Q2053 DTC144WUA
Q2056 DTC144WUA
Q2003 DTA144WUA
Q2001 2SC4081/QRS/
Q2002 2SC4081/QRS/
Q2101
Q2251
SP PRE/REC AMP
LP/EP PRE/REC AMP
PRE/REC GND
PRE/REC VCC
BOL GND
ENV OUT
D.FF
DET
A.GND
DC PB
A.VCC
MONO-DET
A.MUTE
5
4
3
2
1

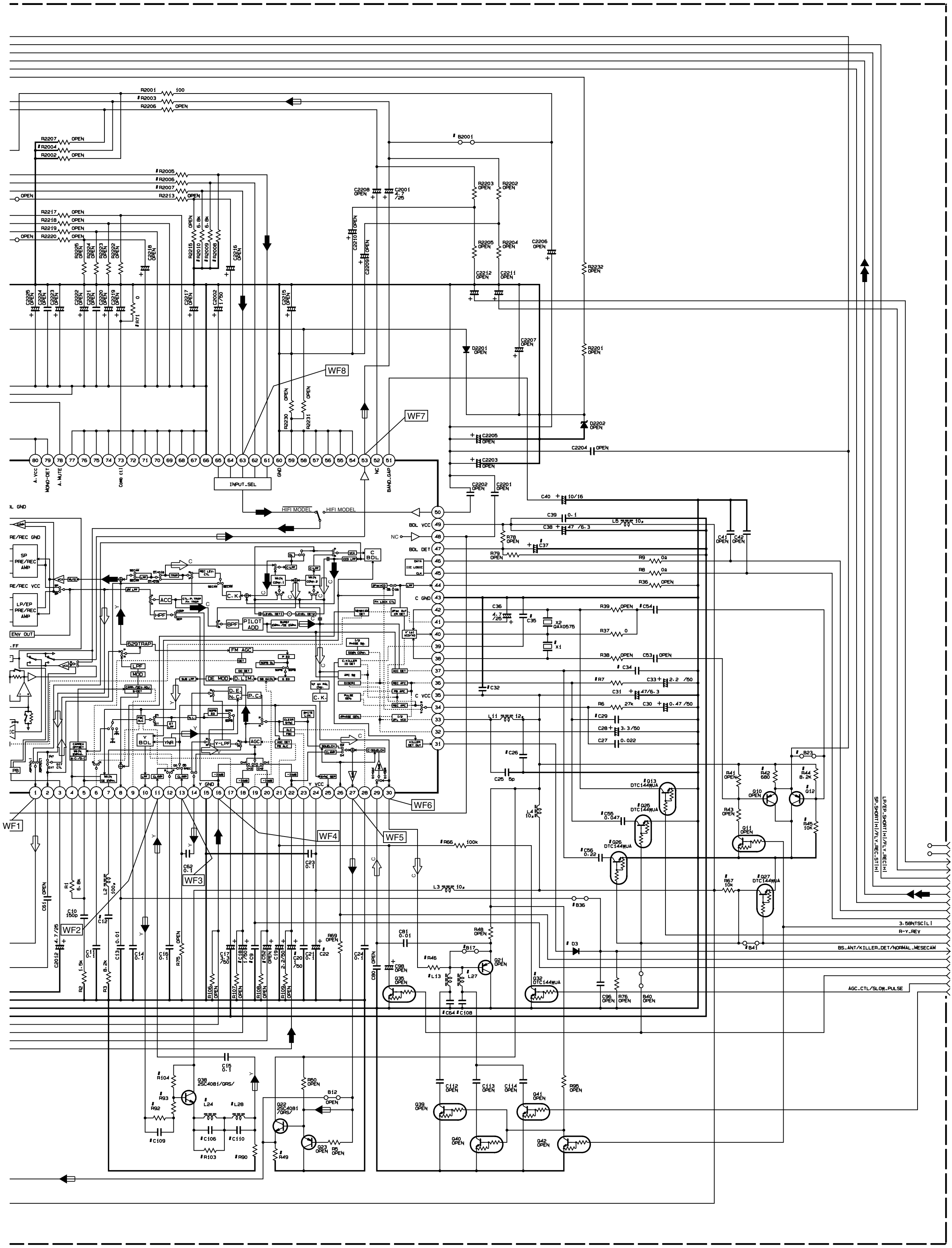
Note : For the waveforms in this schematic diagram, refer to page 4-12.

○ : Used
× : Not used

#DIFFERENCE TABLE

SYMBOL	IC1	X1	Q1-Q4 R21, R22 C69, C70	Q12, R42 R44, R45	C54	B23	B36	Q13	Q25, Q27 R67, C55	B41 Q26 C56	D3	R7	R46	R49	R66 Q32	R90	R92	R93	R103	R104	C1-C4	C5	C7	C9	C12	C20	C22	C26	C29	C32	C34	C35	C37	C64	C65	C106	C108	C109	C11
US	NVA	×	×	×	0Ω	○	×	×	×	○	×	820	330	560	○	470	3.9k	2.2k	OPEN	5.6k	1	47/16	470p	0.01	33p	NONPOLAR	47/6.3	0.1	0.0047	0.01	0.1	0.033	4.7/25	15p	×	1000p	×	0.022	330
DOM.	NVA	×	×	×	0Ω	○	×	×	×	○	×	820	330	560	×	470	3.9k	2.2k	OPEN	5.6k	1	47/16	470p	0.01	33p	NONPOLAR	47/6.3	0.1	0.0047	0.01	0.1	0.033	4.7/25	15p	×	1000p	×	0.022	330
PAL-M	MVA	QAX0578	×	○	0.01	×	×	○	○	×	SHORT	820	330	560	○	470	3.9k	2.2k	OPEN	5.6k	1	47/16	470p	0.01	33p	○	47/6.3	0.1	0.068	0.01	0.1	0.01	4.7/25	15p	×	1000p	×	0.022	330
PAL-N	MVA	QAX0580	○	○	0.01	×	×	×	×	×	×	820	330	560	○	470	3.9k	2.2k	OPEN	5.6k	0.01	47/16	470p	0.01	33p	○	47/6.3	0.1	0.1	0.01	0.1	0.033	4.7/25	15p	×	1000p	×	0.022	330
ARC	MVA	QAX0576	×	○	0.01	×	○	×	×	×	×	680	560	1k	×	470	1.5k	2.2k	OPEN	6.8k	##	220/6.3	×	×	56p	NONPOLAR	100/6.3	×	0.033	0.1	0.22	0.01	1/50	22p	○	470p	22p	0.22	330

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.


WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
INPUT_SEL
HIFI MODEL
A.VCC
MONO-DET
A.MUTE
GND
NC
BAND_GAP
BDL VCC
BDL DET
C GND
C VCC
Y GND
Y VCC
SP PRE/REC AMP
LP/EP PRE/REC AMP
ENV OUT
X2 GAX0575
X1
DTC144WUA
2SC4081/QRS/
TO SYSCON
I2C_DATA
I2C_CLK
IND[R]
IND[L]
CTL2
CTL3
D.FF
VIDEO_ENV
I2C_DATA_A/V
I2C_CLK_A/V
3.58NTSC[L]
R-Y_REV
CTL4
CTL1
A.MUTE[H]
BS_ANT/KILLER_DET/NORMAL_MESECAM
CTL8
V.PULSE
SB_GAIN
EE[L]/EPLP[H]
AGC_CTL/SLOW_PULSE
CTL5
MESECAM[H]
LP/EP_SHORT[H]/PLY_REC[H]
SP_SHORT[H]/PLY_REC_ST[H]

p10258001a_rev2.1

108	C109	C110	L13	L24	L27	L28	R2015	R2017	R2053	R2003	R2004	R2005	R2006	R2007	R2008	C2010
×	0.022	330p	68µ	18µ	×	15µ	180	15k	4.7k	680	2.7k	33k	47k	47k	47k	0.0022
×	0.022	330p	68µ	18µ	×	15µ	180	15k	4.7k	680	2.7k	33k	47k	47k	47k	0.0022
×	0.022	330p	68µ	18µ	×	15µ	180	15k	4.7k	680	2.7k	33k	47k	47k	47k	0.0022
×	0.022	330p	68µ	18µ	×	15µ	150	18k	4.7k	680	2.7k	33k	47k	47k	47k	0.0015
22p	0.22	330p	100µ	47µ	33µ	15µ	180	18k	4.7k	100	4.7k	15k	56k	56k	10k	0.0015

##

SYMBOL	C1 C2	C3 C4	R71
ARC 4HEAD	0.1	0.1	×
ARC 2HEAD	0.01	×	○

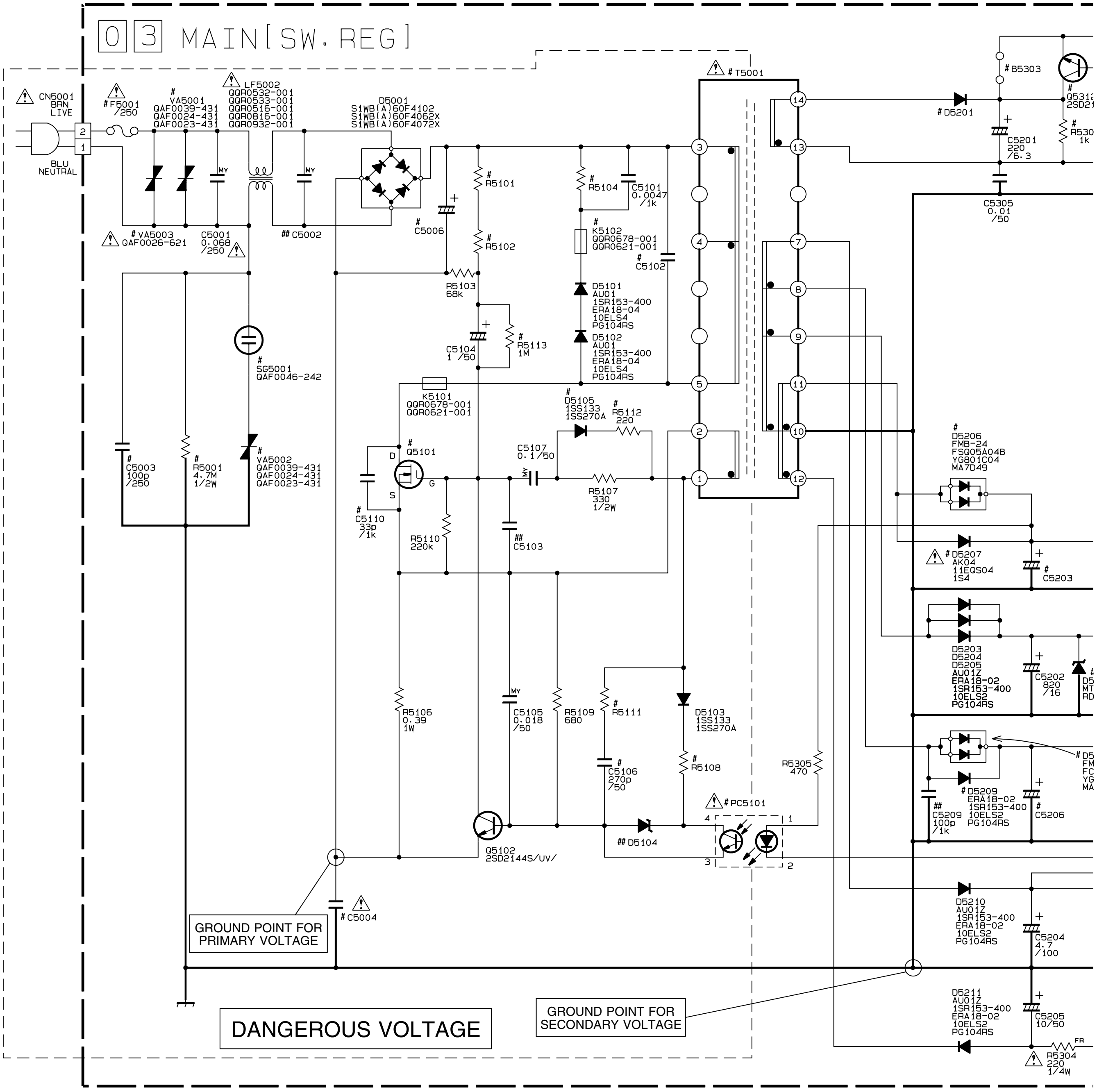
#

SYMBOL / INPUT	C18	C52	C51 D4.D5	R2006 R2009	R2007 R2010
FRONT ONLY	×	×	○	○	×
REAR ONLY	○	×	×	×	○
FRONT/REAR	○	×	○	○	○

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MY MYLER
N NON POLAR

4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM


03 MAIN[SW.REG]
CN5001 BRN LIVE
BLU NEUTRAL
# F5001 /250
# VA5001 QAF0039-431 QAF0024-431 QAF0023-431
LF5002 QQR0532-001 QQR0533-001 QQR0516-001 QQR0816-001 QQR0932-001
D5001 S1WB(A)60F4102 S1WB(A)60F4062X S1WB(A)60F4072X
# VA5003 QAF0026-621
C5001 0.068 /250
## C5002
# C5006
# R5101
# R5102
R5103 68k
C5104 1 /50
# R5113 1M
# R5104
C5101 0.0047 /1k
# K5102 QQR0678-001 QQR0621-001
# C5102
D5101 AU01 1SR153-400 ERA18-04 10ELS4 PG104RS
D5102 AU01 1SR153-400 ERA18-04 10ELS4 PG104RS
# T5001
# SG5001 QAF0046-242
K5101 QQR0678-001 QQR0621-001
# D5105 1SS133 1SS270A
# R5112 220
# Q5101
D G S
C5107 0.1/50
R5107 330 1/2W
# C5003 100p /250
# R5001 4.7M 1/2W
# VA5002 QAF0039-431 QAF0024-431 QAF0023-431
# C5110 33p /1k
R5110 220k
## C5103
R5106 0.39 1W
C5105 0.018 /50
R5109 680
# R5111
D5103 1SS133 1SS270A
# C5106 270p /50
# R5108
R5305 470
# PC5101
## D5104
Q5102 2SD2144S/UV/
# C5004
GROUND POINT FOR PRIMARY VOLTAGE
GROUND POINT FOR SECONDARY VOLTAGE
DANGEROUS VOLTAGE
# B5303
# Q5312 2SD21
# D5201
C5201 220 /6.3
# R530 1k
C5305 0.01 /50
# D5206 FMB-24 FSQ05A04B YG801C04 MA7D49
# D5207 AK04 11EQS04 1S4
# C5203
D5203 D5204 D5205 AU01Z ERA18-02 1SR153-400 10ELS2 PG104RS
C5202 820 /16
# D5 MT RD
# D5 FM FC YG MA
# D5209 ERA18-02 1SR153-400 10ELS2 PG104RS
## C5209 100p /1k
# C5206
D5210 AU01Z 1SR153-400 ERA18-02 10ELS2 PG104RS
C5204 4.7 /100
D5211 AU01Z 1SR153-400 ERA18-02 10ELS2 PG104RS
C5205 10/50
FR
R5304 220 1/4W
1 2 3 4 5 7 8 9 10 11 12 13 14

##MARK ELEMENTS ARE NOT MOUNTED

###Marked elements may differ depending on the model.
Be sure to the check the Parts List.

DIFFERENCE TABLE 1

	Q5101	L5301
D.US	2SK3048	SHORT
D(WITH BS)	2SK3048	100μ
BRAZIL	2SK3255	SHORT
OTHER	2SK2632 2SK2129	SHORT

DIFFERENCE TABLE 2

POWER SAVE	B5301 B5303 B5304	B5306 Q5308 R5307 R5315 D5308 Q5310 R5310 R5316 D5312 Q5311 R5311 R5317 Q5306 Q5312 R5313 R5318 Q5307 Q5318 R5314 R5323	R5101 R5102	R5104	R5325
D(WITH BS)	NO	YES	330k	150k 2W	15k
D(W/O BS)	NO	YES	330k	150k 2W	18k
OTHER	YES	NO	220k	68k 2W	NO

DIFFERENCE TABLE 3

BS	C5006	C5203	D5206	D5207
WITH BS	150/200	1200/10	YES	NO
WITHOUT BS(D.US)	82/200	680/10	NO	YES
WITHOUT BS(OTHER)	82/400	680/10	NO	YES

DIFFER

HIGH S FF/F
D.PHIL
D(WITH
OTHER

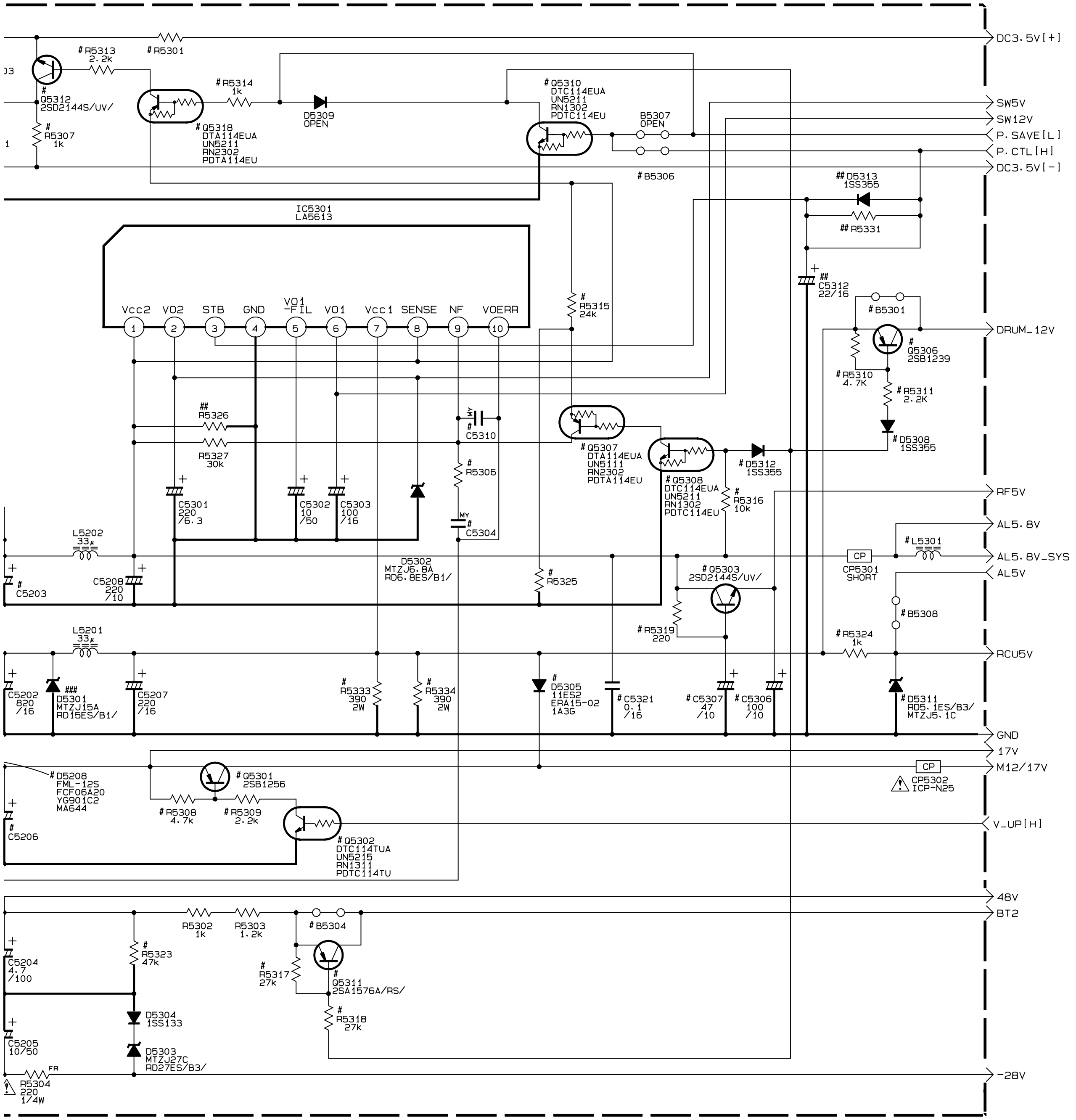
DIFFERENCE TABLE 8

	C5004	C5106	C5304	C5310	D5105	F5001	R5108	R5111	R5112	R5306	R5333 R5334	T5001
AUTO	2200p	YES	0.12	NO	YES	2A	1.2k	470	YES	39k	YES	QQS0030-002 QQS0031-002
OTHER	4700p	NO	0.082	0.039	NO	1.25A	1.5k	820	NO	82k	NO	QQS0030-002 QQS0031-002 QQS0036-001

DIFFERENCE TABLE 9

SURGE etc	SG5001	VA5001 VA5002	VA5003	PC5101
D.US	YES	YES	NO	PS2501-1 PC817 ON3131/RS/ PC
VR110/55./75	NO	NO	NO	PS2561L-1(WL) PC123F2 ON3171
HR-A47U	NO	NO	NO	PS2561L-1(WL) PC123F2 ON3171
OTHER	NO	NO	YES	PS2561L-1(WL) PC123F2 ON3171

*Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only.
When replacing the parts, refer to the Parts List.*


DC3.5V[+]
SW5V
SW12V
P.SAVE[L]
P.CTL[H]
DC3.5V[-]
DRUM_12V
RF5V
AL5.8V
AL5.8V_SYS
AL5V
RCU5V
GND
17V
M12/17V
V_UP[H]
48V
BT2
-28V
#R5313 2.2k
#R5301
#Q5312 2SD2144S/UV/
#R5307 1k
#R5314 1k
#Q5318 DTA114EUA UN5211 RN2302 PDTA114EU
D5309 OPEN
#Q5310 DTC114EUA UN5211 RN1302 PDTC114EU
B5307 OPEN
#B5306
##D5313 1SS355
##R5331
IC5301 LA5613
Vcc2 VO2 STB GND VO1-FIL VO1 Vcc1 SENSE NF VOERR
1 2 3 4 5 6 7 8 9 10
#R5315 24k
##C5312 22/16
#B5301
#Q5306 2SB1239
#R5310 4.7K
#R5311 2.2K
#D5308 1SS355
##R5326
R5327 30k
MY #C5310
#R5306
#Q5307 DTA114EUA UN5111 RN2302 PDTA114EU
#D5312 1SS355
#Q5308 DTC114EUA UN5211 RN1302 PDTC114EU
#R5316 10k
C5301 220 /6.3
C5302 10 /50
C5303 100 /16
MY #C5304
L5202 33μ
C5208 220 /10
#C5203
D5302 MTZJ6.8A RD6.8ES/B1/
#R5325
#Q5303 2SD2144S/UV/
#L5301
CP CP5301 SHORT
#B5308
#R5319 220
#R5324 1k
L5201 33μ
C5202 820 /16
###D5301 MTZJ15A RD15ES/B1/
C5207 220 /16
#R5333 390 2W
#R5334 390 2W
#D5305 11ES2 ERA15-02 1A3G
#C5321 0.1 /16
#C5307 47 /10
#C5306 100 /10
#D5311 RD5.1ES/B3/ MTZJ5.1C
#D5208 FML-12S FCF06A20 YG901C2 MA644
#Q5301 2SB1256
#C5206
#R5308 4.7k
#R5309 2.2k
#Q5302 DTC114TUA UN5215 RN1311 PDTC114TU
CP CP5302 ICP-N25
R5302 1k
R5303 1.2k
#B5304
C5204 4.7 /100
#R5323 47k
#R5317 27k
#Q5311 2SA1576A/RS/
#R5318 27k
D5304 1SS133
C5205 10/50
D5303 MTZJ27C RD27ES/B3/
FR R5304 220 1/4W

p20150001a_rev3

# DIFFERENCE TABLE 4

HIGH SPEED FF/REW	D5208	D5209	D5305	C5206	Q5301 R5308 Q5302 R5309
D.PHILIPS	NO	YES	YES	180/25	YES
D(WITH BS)	YES	NO	YES	330/25	YES
OTHER	NO	NO	SHORT	NO	NO

# DIFFERENCE TABLE 5

LEVEL IND.		D5201	R5301
-YES-		AK04 11EQS04 1S4	1
-NO-	DOM.	AK04 11EQS04 1S4	3.9
	OTHER	AU01Z 10ELS2	0

# DIFFERENCE TABLE 6

	C5003	C5110	K5102
PHILIPS/78	YES	YES	YES
OTHER	NO	NO	SHORT

# DIFFERENCE TABLE 7

	R5001	C5102
US	YES	33p/1k
DOM.	NO	150p/1k
OTHER	NO	100p/1k (33p/1k)

1
131/RS/ PC817X
3F2 ON3171/R/
3F2 ON3171/R/
3F2 ON3171/R/

# DIFFERENCE TABLE 10

RCU 5V	B5308	D5311	R5324
DOM.	NO	YES	YES
OTHER	YES	NO	NO

# DIFFERENCE TABLE 11

RF5V	C5306 R5319 C5307 Q5303	C5321
ARC MONO	YES	YES
OTHER	NO	NO

# DIFFERENCE TABLE 12

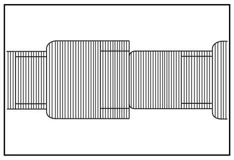
	R5113
PCEC	YES
OTHER	NO

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
+⊣⊢ ELECTROLYTIC
⊣⊢ CERAMIC
⊣⊢MY MYLER
⊣⊢N NON POLAR

WAVEFORMS

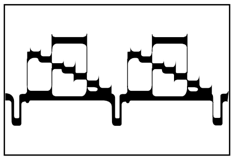
— VIDEO/AUDIO —

WF1 IC1-1



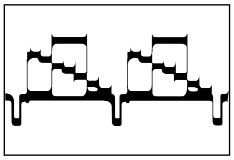
PB 0.52 Vp-p
20 mV/5 msec/DIV

WF2 IC1-11



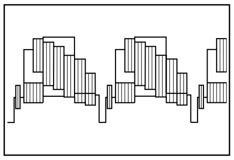
REC/PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF3 IC1-13



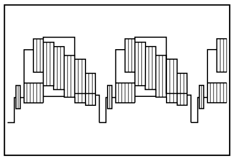
REC/PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF4 IC1-16



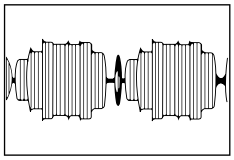
REC 1.0 Vp-p
20 mV/20 µsec/DIV

WF5 IC1-27



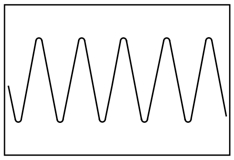
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF6 IC1-30



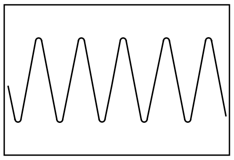
PB 0.64 Vp-p
20 mV/20 µsec/DIV

WF7-1 IC1-53



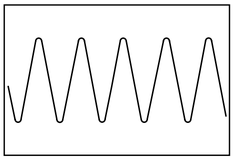
REC 1.0 Vp-p
20 mV/0.5 msec/DIV

WF7-2 IC1-53



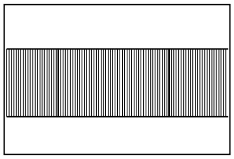
PB 1.4 Vp-p
50 mV/0.5 msec/DIV

WF8 IC1-63



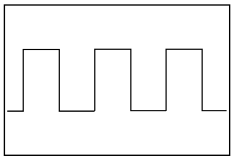
REC 0.1 Vp-p
2 mV/0.5 msec/DIV

WF9 IC1-85



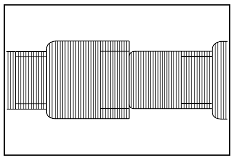
REC 2.2 Vp-p
0.1 V/1 msec/DIV

WF10 TP111
D.FF



REC/PB 3.3 Vp-p
0.1 V/10 msec/DIV

WF11 TP106
PB.FM



PB 0.56 Vp-p
20 mV/5 msec/DIV

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 ELECTRICAL PARTS LIST

****

MAIN BOARD ASSEMBLY <03>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		PW1	LPA10088-15E1	MAIN BOARD ASSY,J486M
			LPA10088-19D1	MAIN BOARD ASSY,J486EN
		IC1	JCP8021-MVD-2	IC
		IC3001	MN101D02GJK	IC,J486M
			MN101D02GJT	IC,J486EN
		IC3002	BA6956AN	IC
		IC3003	S-80823ANUP-W	IC
			or R3111H231A	IC
		IC3004	M24C02-BN6	IC
			or 24LC02B/P	IC
			or AT24C02-10PC	IC
			or KS24C021C	IC
		IC5301	LA5613	IC
		IC7001	M35500BGP	IC
			or M35500AGP	IC
		IC7002	GP1U291Q	IR DETECT UNIT
			or PNA4652M00YC	IR DETECT UNIT
			or PIC-28143LJ	IR DETECT UNIT
		Q1	2SC4081/S/-X	TRANSISTOR,J486EN
		Q2	2SC4081/S/-X	TRANSISTOR,J486EN
		Q3	2SC4081/S/-X	TRANSISTOR,J486EN
		Q4	2SC4081/S/-X	TRANSISTOR,J486EN
		Q12	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q13	DTC144WU	TRANSISTOR,J486M
			or PDTC144WU	TRANSISTOR,J486M
			or RN1309	TRANSISTOR,J486M
			or UN521E	TRANSISTOR,J486M
		Q22	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q25	DTC144WU	TRANSISTOR,J486M
			or PDTC144WU	TRANSISTOR,J486M
			or RN1309	TRANSISTOR,J486M
			or UN521E	TRANSISTOR,J486M
		Q27	DTC144WU	TRANSISTOR,J486M
			or PDTC144WU	TRANSISTOR,J486M
			or UN521E	TRANSISTOR,J486M
			or RN1309	TRANSISTOR,J486M
		Q32	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
			or PDTC144WU	TRANSISTOR
		Q38	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q901	2SA1576A/QRS/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q2001	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q2002	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2003	DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q2051	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q2052	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q2053	DTC144WU	TRANSISTOR
			or PDTC144WU	TRANSISTOR
			or UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
		Q2054	2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q2055	DTC144WU	TRANSISTOR
			or PDTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q3001	PTZ-NV16A	IC(PHOTO COUPLER)
		Q3002	PTZ-NV16A	IC(PHOTO COUPLER)
		Q3003	2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
		Q3004	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q4001	UN5211	TRANSISTOR
			or PDTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or DTC114EU	TRANSISTOR
		Q4002	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q5101	2SK2632-CB14	POWER MOS FET
			or 2SK2129-LT	POWER MOS FET
			or 2SK2632	POWER MOS FET
			or 2SK2129	POWER MOS FET
		Q5102	2SD2144S/UV/-T	TRANSISTOR
		Q6030	2SB1218A/QR/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		D1	1SS133	DIODE
			or 1SS270A	DIODE
		D2	1SS133	DIODE
			or 1SS270A	DIODE
		D4	1SS133	DIODE
			or 1SS270A	DIODE
		D5	1SS133	DIODE
			or 1SS270A	DIODE
		D3001	LNB2301L01VI	LE DIODE

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	D3002	1SS133	DIODE
		or 1SS270A	DIODE
	D3004	11ES2	DIODE
		or 1A3G	DIODE
	D3005	11ES2	DIODE
		or 1A3G	DIODE
	D3006	RD33ES/B2/-T2	ZENER DIODE
		or MTZJ33B	ZENER DIODE
⚠	D3008	RB721Q-40-T2	SB DIODE
	D3009	DA204U	DIODE
	D3013	DA204U	DIODE
	D3015	DAN202U	DIODE
	D4003	1SS133	DIODE
		or 1SS270A	DIODE
	D5001	S1WB/A/60-4102	BRIDGE DIODE
		or S1WB(A)60F4072X	BRIDGE DIODE
		or S1WB/A/60-X	BRIDGE DIODE
	D5101	AU01	FR DIODE
		or ERA18-04-T2	FR DIODE
		or 1SR153-400-T2	FR DIODE
		or 10ELS4	FR DIODE
	D5102	AU01	FR DIODE
		or ERA18-04-T2	FR DIODE
		or 10ELS4	FR DIODE
		or 1SR153-400-T2	FR DIODE
	D5103	1SS133	DIODE
		or 1SS270A	DIODE
	D5105	1SS133	DIODE
		or 1SS270A	DIODE
	D5201	AU01Z	FR DIODE
		or 10ELS2	FR DIODE
	D5203	AU01Z	FR DIODE
		or ERA18-02-T2	FR DIODE
		or PG104RS	FR DIODE
		or 1SR153-400-T2	FR DIODE
		or 10ELS2	FR DIODE
	D5204	AU01Z	FR DIODE
		or ERA18-02-T2	FR DIODE
		or PG104RS	FR DIODE
		or 10ELS2	FR DIODE
		or 1SR153-400-T2	FR DIODE
	D5205	AU01Z	FR DIODE
		or PG104RS	FR DIODE
		or 10ELS2	FR DIODE
		or 1SR153-400-T2	FR DIODE
		or ERA18-02-T2	FR DIODE
⚠	D5207	AK04	DIODE
⚠		or 1S4	SB DIODE
⚠		or 11EQS04	SB DIODE
	D5210	AU01Z	FR DIODE
		or PG104RS	FR DIODE
		or 1SR153-400-T2	FR DIODE
		or ERA18-02-T2	FR DIODE
		or 10ELS2	FR DIODE
	D5211	AU01Z	FR DIODE
		or ERA18-02-T2	FR DIODE
		or 1SR153-400-T2	FR DIODE
		or 10ELS2	FR DIODE
		or PG104RS	FR DIODE
	D5301	MTZJ15A	ZENER DIODE,J486EN
		MTZJ15C	ZENER DIODE,J486M

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		or RD15ES/B1/-T2	ZENER DIODE,486EN	
		or RD15ES/B3/-T2	ZENER DIODE,J486M	
		or MTZJ16A	ZENER DIODE,J486M	
		or RD16ES/B1/-T2	ZENER DIODE,J486M	
	D5302	MTZJ6.8A	ZENER DIODE	
		or RD6.8ES/B1/-T2	ZENER DIODE	
	D5303	MTZJ27C	ZENER DIODE	
		or RD27ES/B3/-T2	ZENER DIODE	
	D5304	1SS133	DIODE	
		or 1SS270A	DIODE	
	D6002	HZ30-2L-T2	ZENER DIODE	
		or HZ30-2LTD	Z DIODE (M)	
	D7002	RD9.1ES/B2/-T2	ZENER DIODE	
		or UZ9.1BSB	ZENER DIODE	
		or MTZJ9.1B	ZENER DIODE	
	R1	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
	R2	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
	R3	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
	R6	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
	R7	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
	R8	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R9	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R12	QRE141J-0R0Y	RESISTOR	0Ω,1/4W
	R21	NRSA02J-102X	MG RESISTOR,J486EN	1kΩ,1/10W
	R22	NRSA02J-102X	MG RESISTOR,J486EN	1kΩ,1/10W
	R37	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R42	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
	R44	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
	R45	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R46	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
	R49	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
	R66	QRE141J-104Y	RESISTOR	100kΩ,1/4W
	R67	QRE141J-103Y	RESISTOR,J486M	10kΩ,1/4W
	R77	QRE141J-103Y	RESISTOR	10kΩ,1/4W
	R90	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R92	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
	R93	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R104	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
	R201	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
	R202	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R203	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R204	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R901	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
	R904	QRE123J-331X	RESISTOR	330Ω,1/2W
	R905	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R912	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
	R2001	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R2003	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
	R2004	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
	R2005	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
	R2006	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R2008	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R2009	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
	R2012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
	R2013	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
	R2014	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
	R2015	NRSA02J-121X	MG RESISTOR,J486EN	120Ω,1/10W
		NRSA02J-181X	MG RESISTOR,J486M	180Ω,1/10W
	R2016	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R2017	NRSA02J-153X	MG RESISTOR,J486M	15kΩ,1/10W
		NRSA02J-223X	MG RESISTOR,J486EN	22kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2053	NRSA02J-472X	MG RESISTOR,J486M	4.7kΩ,1/10W
			NRSA02J-682X	MG RESISTOR,J486EN	6.8kΩ,1/10W
		R2054	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R2056	NRSA02J-820X	MG RESISTOR	82Ω,1/10W
		R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2602	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3001	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3002	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3005	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3007	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3008	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3013	NRSA02J-102X	MG RESISTOR,J486M	1kΩ,1/10W
		R3015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3016	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3017	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3018	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3019	NRSA02J-102X	MG RESISTOR,J486EN	1kΩ,1/10W
		R3020	NRSA02J-102X	MG RESISTOR,J486EN	1kΩ,1/10W
		R3021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3027	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3029	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3031	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3035	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3043	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3046	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3060	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3078	NRSA02J-102X	MG RESISTOR,J486M	1kΩ,1/10W
		R3079	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3081	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3083	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3085	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3086	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3090	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3092	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3094	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3096	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3097	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3098	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3201	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3202	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3203	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3204	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R3205	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R3206	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3207	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3208	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3209	QRE141J-181Y	RESISTOR	180Ω,1/4W
		R3210	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3212	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R3213	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R3214	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R3215	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R3216	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
		R3217	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
		R3219	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3220	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3223	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R3224	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3226	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3227	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3232	QRE141J-104Y	RESISTOR	100kΩ,1/4W
		R3233	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3234	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	⚠	R3235	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3237	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R3238	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R4001	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
		R4002	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R4003	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R4006	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R4010	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R4011	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R4012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R4018	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4021	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4022	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R4024	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R5101	QRE141J-224Y	RESISTOR	220kΩ,1/4W
		R5102	QRE141J-224Y	RESISTOR	220kΩ,1/4W
		R5103	QRE141J-683Y	RESISTOR	68kΩ,1/4W
		R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W
		R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W
		R5107	QRE121J-331Y	RESISTOR	330Ω,1/2W
		R5108	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R5109	QRE141J-681Y	RESISTOR	680Ω,1/4W
		R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R5111	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5112	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	⚠	R5304	QRZ9005-221X	FUSI RESISTOR	220Ω,1/4W
		R5305	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5306	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R5327	NRSA02J-303X	MG RESISTOR	30kΩ,1/10W
		R5333	QRL02DJ-391X	OMF RESISTOR	390Ω,2W
		R5334	QRL02DJ-391X	OMF RESISTOR	390Ω,2W
		R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6030	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R6032	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R6033	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R6053	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7001	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7002	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7003	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7004	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7013	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7017	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R7020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	R7021	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	R7022	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
	R7023	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R7024	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
	R7030	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R7031	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	R7032	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
	R7033	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R7034	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R7037	NRSA02J-563X	MG RESISTOR	56kΩ,1/10W
	C1	NCB21HK-103X	CAPACITOR,J486EN	0.01μF,50V
		NCF21CZ-105X	CAPACITOR,J486M	1μF,16V
	C2	NCB21HK-103X	CAPACITOR,J486EN	0.01μF,50V
		NCF21CZ-105X	CAPACITOR,J486M	1μF,16V
	C3	NCB21HK-103X	CAPACITOR,J486EN	0.01μF,50V
		NCF21CZ-105X	CAPACITOR,J486M	1μF,16V
	C4	NCB21HK-103X	CAPACITOR,J486EN	0.01μF,50V
		NCF21CZ-105X	CAPACITOR,J486M	1μF,16V
	C5	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C6	NCB11EK-104X	CAPACITOR	0.1μF,25V
	C7	NCB21HK-471X	CAPACITOR	470pF,50V
	C8	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C9	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C10	NDC21HJ-151X	CAPACITOR	150pF,50V
	C11	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C12	NDC21HJ-330X	CAPACITOR	33pF,50V
	C14	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C15	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C16	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C17	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
	C19	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
	C20	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C21	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C22	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C23	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C24	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C25	NDC21HJ-5R0X	CAPACITOR	5pF,50V
	C26	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C27	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C28	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
	C29	NCB21EK-104X	CAPACITOR,J486EN	0.1μF,25V
		NCB21HK-683X	CAPACITOR,J486M	0.068μF,50V
	C30	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
	C31	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C32	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C33	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
	C34	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C35	NCB21EK-333X	CAPACITOR,J486EN	0.033μF,25V
		NCB21EK-103X	CAPACITOR,J486M	0.01μF,25V
	C36	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C37	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C38	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C39	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C40	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C51	QERF1HM-105	E CAPACITOR	1μF,50V
	C54	NCB21EK-103X	CAPACITOR	0.01μF,25V
	C55	NCB21HK-473X	CAPACITOR,J486M	0.047μF,50V
	C62	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C64	NDC21HJ-150X	CAPACITOR	15pF,50V
	C69	NCB21HK-471X	CAPACITOR,J486EN	470pF,50V
	C70	NCB21HK-471X	CAPACITOR,J486EN	470pF,50V
	C81	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C106	NCB21HK-102X	CAPACITOR	0.001μF,50V
	C109	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C110	NCB21HK-331X	CAPACITOR	330pF,50V
	C201	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
	C202	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C203	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C205	NDC21HJ-101X	CAPACITOR	100pF,50V
	C207	NCF21CZ-105X	CAPACITOR	1μF,16V
	C208	NDC21HJ-101X	CAPACITOR	100pF,50V
	C209	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C210	NCB21HK-222X	CAPACITOR	0.0022μF,50V
	C211	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C901	QETN0JM-477	E CAPACITOR	470μF,6.3V
	C903	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C904	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C2001	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2002	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C2003	QEKC1CM-476	E CAPACITOR	47μF,16V
	C2005	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2006	NCB21HK-123X	CAPACITOR	0.012μF,50V
	C2007	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C2008	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2009	NCB21HK-102X	CAPACITOR	0.001μF,50V
	C2010	NCB21HK-222X	CAPACITOR	0.0022μF,50V
	C2011	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2012	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2051	QCBB1HJ-331	CAPACITOR	330pF,50V
	C2052	QFV91HJ-823	F CAPACITOR	0.082μF,50V
	C2053	NCB21HK-472X	CAPACITOR	0.0047μF,50V
	C2054	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C2055	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C3001	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C3002	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C3003	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C3008	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3013	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C3016	NDC21HJ-180X	CAPACITOR	18pF,50V
	C3017	NDC21HJ-220X	CAPACITOR	22pF,50V
	C3018	QAT3725-300Z	TRIM CAPACITOR,TIMER CLOCK	
	C3019	NDC21HJ-100X	CAPACITOR	10pF,50V
	C3020	NDC21HJ-180X	CAPACITOR	18pF,50V
	C3022	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3023	NCF21CZ-105X	CAPACITOR	1μF,16V
	C3024	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C3025	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3028	QETN0JM-108	E CAPACITOR	1000μF,6.3V
	C3029	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3030	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
	C3035	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C3036	QERF0JM-107	E CAPACITOR	100μF,6.3V
	C3048	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3049	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3050	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3052	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3053	QDYB1CM-103Y	CAPACITOR	0.01μF,16V
	C3054	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C4001	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C4002	QEKJ1HM-224	E CAPACITOR	0.22μF,50V
	C4004	QERF0JM-336	E CAPACITOR	33μF,6.3V
	C4006	NCB21EK-563X	CAPACITOR	0.056μF,25V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C4007	NCB21HJ-103X	CAPACITOR	0.01μF,50V
		C4008	QERF0JM-476	E CAPACITOR	47μF,6.3V
		C4009	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C4010	QERF0JM-476	E CAPACITOR	47μF,6.3V
		C4011	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C4012	NDC21HJ-471X	CAPACITOR	470pF,50V
		C4014	NDC21HJ-101X	CAPACITOR	100pF,50V
		C4015	NDC21HJ-101X	CAPACITOR	100pF,50V
		C4016	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C4017	NCB21HJ-103X	CAPACITOR	0.01μF,50V
		C4019	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C4022	NDC21HJ-101X	CAPACITOR	100pF,50V
	⚠	C5001	QFZ9073-683	F CAPACITOR	0.068μF,250V
	⚠	C5004	QCZ9071-222	CAPACITOR	0.0022μF,250V
		C5006	QEZ0374-826	E CAPACITOR	82μF,400V
		C5101	QCZ0212-472	CAPACITOR	0.0047μF,1kV
		C5102	QCZ0302-330Z	CAPACITOR	33pF,1kV
		C5104	QETN1HM-105	E CAPACITOR	1μF,50V
		C5105	QFN31HJ-183	F CAPACITOR	0.018μF,50V
		C5106	QCBB1HJ-271	CAPACITOR	270pF,50V
		C5107	QFV91HJ-104	F CAPACITOR	0.1μF,50V
		C5201	QEMU0JM-227	E CAPACITOR	220μF,6.3V
		C5202	QEMT1CM-827	E CAPACITOR	820μF,16V
		C5203	QEMT1AM-687	E CAPACITOR	680μF,10V
		C5204	QETN2AM-475	E CAPACITOR	4.7μF,100V
		C5205	QETN1HM-106	E CAPACITOR	10μF,50V
		C5207	QETN1CM-227	E CAPACITOR	220μF,16V
		C5208	QETN1AM-227	E CAPACITOR	220μF,10V
		C5301	QEMU0JM-227	E CAPACITOR	220μF,6.3V
		C5302	QETN1HM-106	E CAPACITOR	10μF,50V
		C5303	QETN1CM-107	E CAPACITOR	100μF,16V
		C5304	QFVF1HJ-124Z	F CAPACITOR	0.12μF,50V
		C5305	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6013	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6031	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C6519	NCB21HK-123X	CAPACITOR	0.012μF,50V
		C7001	QDGB1HK-102Y	CAPACITOR	0.001μF,50V
		C7002	QEKJ1HM-106	E CAPACITOR	10μF,50V
		C7007	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C7008	NCF21CZ-105X	CAPACITOR	1μF,16V
		C7009	NDC21HJ-220X	CAPACITOR	22pF,50V
		C7010	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C7011	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
		C7013	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7014	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7019	NCB21EK-223X	CAPACITOR	0.022μF,25V
		L1	QQL29BJ-100Z	COIL	10μH
		L2	QQL29BJ-101Z	COIL,J486EN	100μH
		L3	QQL29BJ-100Z	COIL	10μH
		L4	QQL29BJ-100Z	COIL	10μH
		L5	QQL29BJ-100Z	COIL	10μH
		L11	QQL01BJ-120Z	COIL	12μH
		L13	QQL231J-680Y	COIL	68μH
		L24	QQL231J-180Y	COIL	18μH
		L28	QQL231J-150Y	COIL	15μH
		L201	QQL29BJ-100Z	COIL	10μH
		L203	QQL231J-4R7Y	COIL	4.7μH
		L901	QQL29BJ-100Z	COIL	10μH
		L5201	PELN1184	COIL	33μH
		L5202	PELN1184	COIL	33μH
		X1	QAX0578-001	CRYSTAL RESONATOR,J486M	
			QAX0580-001	CRYSTAL RESONATOR,J486EN	
		X2	QAX0575-001	CRYSTAL RESONATOR	
		X3001	QAX0526-001Z	CRYSTAL RESONATOR	
		X3002	QAX0444-001	CRYSTAL RESONATOR	
		S3001	QSW0602-004	PUSH SWITCH,REC.SAFETY	
		S6050	QSW0460-001	SLIDE SWITCH	
		S7001	QSW0456-002Z	TACT SWITCH,POWER	
		S7002	QSW0456-002Z	TACT SWITCH,P.JOG+	
		S7004	QSW0456-002Z	TACT SWITCH,CH-	
		S7006	QSW0456-002Z	TACT SWITCH,CH+	
		S7010	QSW0456-002Z	TACT SWITCH,MENU	
		S7011	QSW0456-002Z	TACT SWITCH,REC	
		S7013	QSW0456-002Z	TACT SWITCH,STOP/EJECT	
		S7015	QSW0456-002Z	TACT SWITCH,PAUSE	
		S7016	QSW0456-002Z	TACT SWITCH,P.JOG-	
		K5101	QQR0678-001Z	FERRITE BEAD	
		PC3001	GP3S123	IC(PHOTO SENSOR)	
		PC3002	GP3S123	IC(PHOTO SENSOR)	
	⚠	PC5101	PS2561L1-1/WL/	IC(PHOTO COUPLER)	
		T2051	PELN0832	OSC TRANSFORMER	
	⚠	T5001	QQS0030-002	SW TRANSFORMER	
		TU6001	QAU0170-001	TUNER	
	⚠	TB1	LP20383-001B	TERMINAL BORAD	
		ET1	PQ21623-2-5	EARTH PLATE(RF)	
		DI7001	QLF0031-001	FL TUBE	
		HD1	PQ35479-1-4	HOLDER(FDP),DI7001	
	⚠	HS1	LP40090-001A	HEAT SINK,Q5101	
		SD1	LP30644-001A	SHIELD CASE(PRE)	
		OT1	QYTDST3006Z	SCREW,Q5101	
		J2	QNN0292-002	PIN JACK,A/V OUT	
		FC5001	QNG0006-001Z	FUSE CLIP,F5001	
		FC5002	QNG0006-001Z	FUSE CLIP,F5001	
		FW7106	QUM022-30A4A4	PARA RIBON WIRE	
		J7101	QNN0289-001	PIN JACK,FRONT IN	
	⚠	LF5002	QQR0516-001	LINE FILTER	
	⚠	VA5003	QAF0026-621	VARISTOR	
		CN1	QGF1028C2-08	FPC CONNECTOR,(1-8)U.DRUM	
		CN2001	QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD	
		CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD	
		CN3001	QGB2015M2-08	CONNECTOR,(1-8)CAPSTAN MOTOR	
		CN3002	QGF1207C1-05	FPC CONNECTOR,(1-5)DRUM MDA	
		CN3003	QGB2532J1-02	CONNECTOR,(1-2)LOADING MOTOR	
		CN3004	QGB2534J2-04	CONNECTOR,(1-4)ROTARY ENCODER	
	⚠	CN5001	QGA7901C3-02	CONNECTOR,(1-2)AC IN	
		CN7001	QGF1207C1-09	FPC CONNECTOR,(1-9)MINI FRONT	
	⚠	CP4001	ICP-N25	CIRCUIT PROTECTOR	
	⚠	CP5302	ICP-N25	CIRCUIT PROTECTOR	
	⚠	F5001	QMF51E2-2R0	FUSE	T2.0A,AC250V

JVC

HR-J686EN/J686M

No. 82785

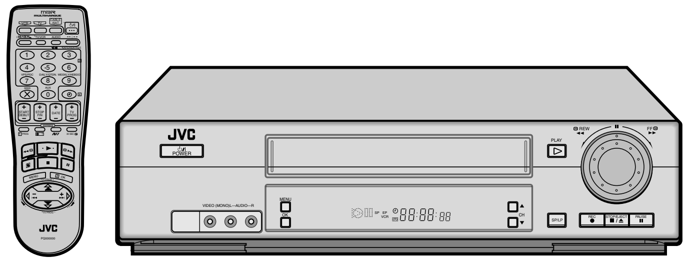
VICTOR COMPANY OF JAPAN, LIMITED
VIDEO DIVISION

S40894

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J686EN/J686M



VHS
N-PAL NTSC
Hi-Fi
SQPB
NTSC

ESPECIFICACIONES *(The specifications shown pertain specifically to the model HR-J686EN)*

GENERALIDADES

Alimentación	: 110 V – 220 V∿ - CA, 50/60 Hz
Consumo	
Alimentación conectada	: 19 W
Alimentación desconectada	: 2,5 W
Temperatura	
De funcionamiento	: 5°C a 40°C (41°F a 104°F)
De almacenamiento	: –20°C a 60°C (–4°F a140°F)
Posición de funcionamiento	: Unicamente horizontal
Dimensiones (An x Al x Pr)	: 400 mm x 94 mm x 281 mm
Peso	: 3,5 kg
Formato	: Norma VHS PAL-N/NTSC
Tiempo máximo de grabación	
SP	: 240 minutos con un videocassette E-240 (PAL-N)
	: 160 minutos con un videocassette T-160 (NTSC)
LP	: 480 minutos con un videocassette E-240 (PAL-N)
EP	: 480 minutos con un videocassette T-160 (NTSC)

VIDEO/AUDIO

Sistema de señales	: Señal de color tipo PAL-N y señales monocromas EIA, 625 líneas/50 campos, Señales cromáticas NTSC y señales monocromas EIA, 525 líneas /60 campos (solo para reproducción)
Sistema de grabación/ reproducción	: Sistema de exploración helicoidal de 4 cabezas DA-4 (doble acimut)
Relación señal a ruido	: 45 dB
Resolución horizontal	: 240 líneas (PAL-N)
	: 230 líneas (NTSC)
Gama de frequencia	
Audio nomal	: 70 Hz a 10,000 Hz
Audio de alta fidelida	: 20 Hz a 20,000 Hz
Entrada/Salida	: Conectores RCA (IN x 1, OUT x 1)

SINTONIZADOR

Sistema de sintonía	: Sintonizador de frecuencia sintetizada
Cobertura de canales	
VHF	: Canales 2–13
UHF	: Canales 14–69
CATV	: 113 Canales
Salida de RF	: Salida de RF: Canal 3 ó 4 (conmutable; preajustado en fábrica al canal 3) 75 Ω, asimétrica

TEMPORIZADOR

Referencia de reloj	: Cuarzo
Capacidad de programación	: Temporizador programable para 1 año/8 programas
Tiempo de protección de la memoria	: Aprox. 6 meses Cifra estimada pasada en la pila nueva suministrada; el rendimiento real puede ser diferente.

ACCESORIOS

Accesorios suministrados	: Cable RF, Unidad e control remoto por infrarrojos, Pila de litio CR2025, Pila “AA” x 2

A menos que se especifique lo contrario, las especificaciones dadas son para el modo SP.
El diseño y las especificaciones se encuentran sujetos a cambios sin previo aviso.

Printed in Japan

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July 2000

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The following table lists the differing points between Models (HR-J686EN and HR-J686M) in this series.

	HR-J686EN	HR-J686M
SHUTTLE DIAL	NOT USED	USED
VIDEO SYSTEM	PAL-N/NTSC	PAL-M/NTSC
SQPB	NTSC ONLY	NTSC, PAL-M
LEVEL METER	USED	NOT USED
POWER PLUG	IRAM	SEV 2PIN
COSMETIC	LIGHT SILVER	CHAMPAGNE
ANT. CABLE	F-F	F-F/300ohm

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

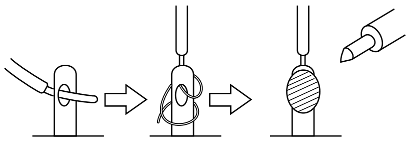


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

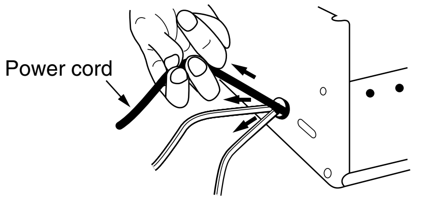


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission.
    Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits.
    Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) Connector part number : E03830-001
    2) Required tool : Connector crimping tool of the proper type which will not damage insulated parts.
    3) Replacement procedure
    (1) Remove the old connector by cutting the wires at a point close to the connector.
    Important : Do not reuse a connector (discard it).

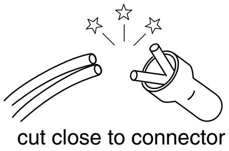


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

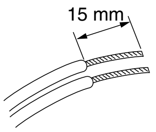


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

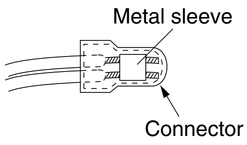


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

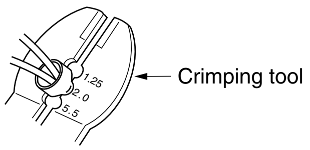


Fig.6

(5) Check the four points noted in Fig.7.

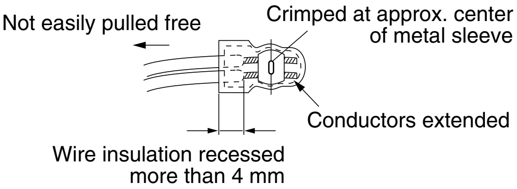

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

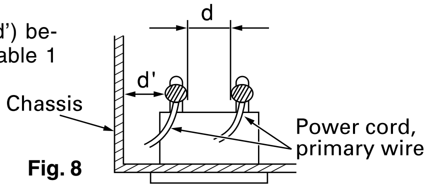


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method : (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

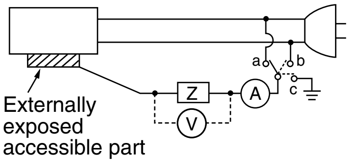


Fig. 9

5. **Grounding (Class 1 model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

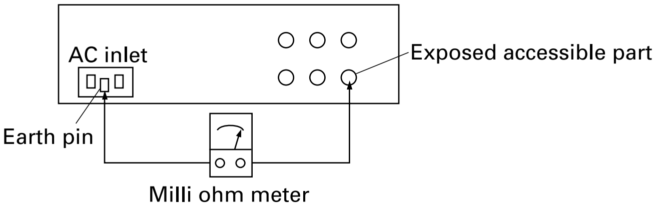


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

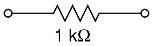
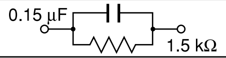
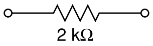
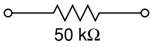
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada		i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia		i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
			i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

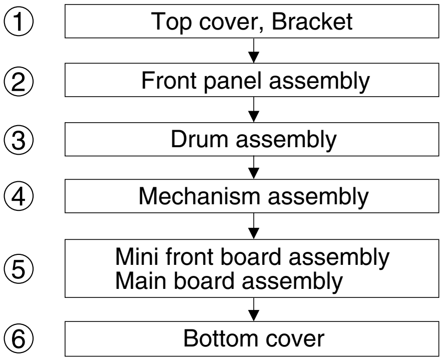
Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

<Example>

Step/ Loc No.	Part Name	Fig. No.	Point	Note
①	Top cover, Bracket	D1	4(S1a),(S1b),3(L1a), 2(SD1a),(P1a), CN1(WR1a), 2(S1c)	<Note 1>

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig. No. showing procedure or part location.
(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P= Spring, W= Washer, S= Screw, L= Locking tab, SD= Solder, CN**(WR**)= Remove the wire (WR**) from the connector (CN**).

Note:

- ***The bracketed ( ) WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.***

(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

Step/ Loc No.	Part Name	Fig. No.	Point	Note
①	Top cover	D1	2(S1a), (S1b)	
	Bracket		2(S1c)	
②	Front panel assembly	D2	7(L2) CN7001(WR2) [HR-J686EN]	<Note 2a> <Note 2b> <Note 2c>
③	Drum assembly	D3	3(S3) CON1(WR3a), CN1(WR3b)	<Note 2a>
	(Cleaner assy)		(L3c)	
④	Mechanism assembly	D4	2(S4a),(S4b),(S4c), 2(L4), CN1(WR4)	<Note 2a> <Note 4a>
⑤	Mini front board assembly [HR-J686M]		(L5a), CN7001(WR5)	<Note 2a> <Note 5>
	Main board assembly	D5	(S5a), (S5b), 6(L5b)	
⑥	Bottom cover	D6	2(L6a),6(L6b),3(L6c)	<Note 6>

<Note 2a>
- Be careful not to damage the connector and wire etc. during connection and disconnection.
When connecting the wire to the connector, be careful with the wire direction.

<Note 2b>
- When reattaching the Front panel assembly, make sure that the door opener ⓐ of the Cassette holder assembly is lowered in position prior to the reinstallation.

<Note 2c>
- When reattaching the Front panel assembly, pay careful attention to the switch lever not to make it touch the switch knob ⓑ of the Main board assembly from the side.
(If the switch knob of the Main board assembly is damaged, cassette loading is impossible.)

<Note 4a>
- When it is required to remove the screws (S4a) retaining the Mechanism assembly, please refer to the “Procedures for Lowering the Cassette holder assembly”(See on page 1-2).
- When removing the Mechanism assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Mechanism assembly.
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors on the Main board assembly (D3001: LED, Q3001: Start sensor, Q3002: End sensor).

<Note 5>
- When removing the PC Support from the bottom chassis, take care not to damage the locking portion of the PC Support.

<Note 6>
- When removing the bottom cover, push down the two tabs (L6a) to slide the bottom cover.

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two screws unscrewed when removing the Mechanism assembly.

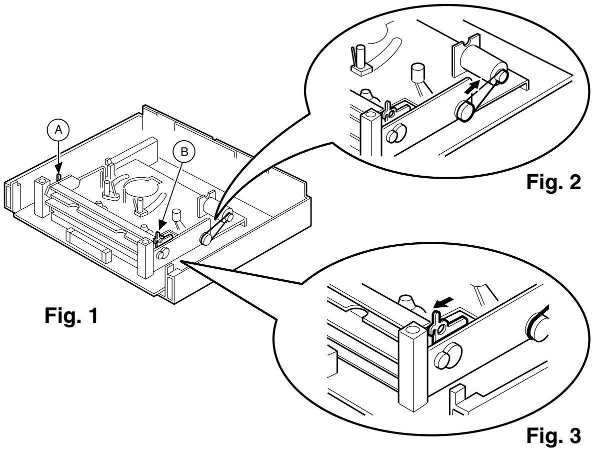


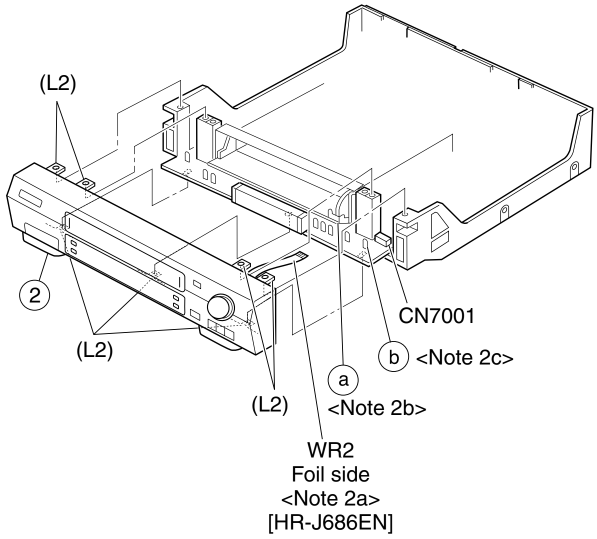
Fig. 1

Fig. 2

Fig. 3

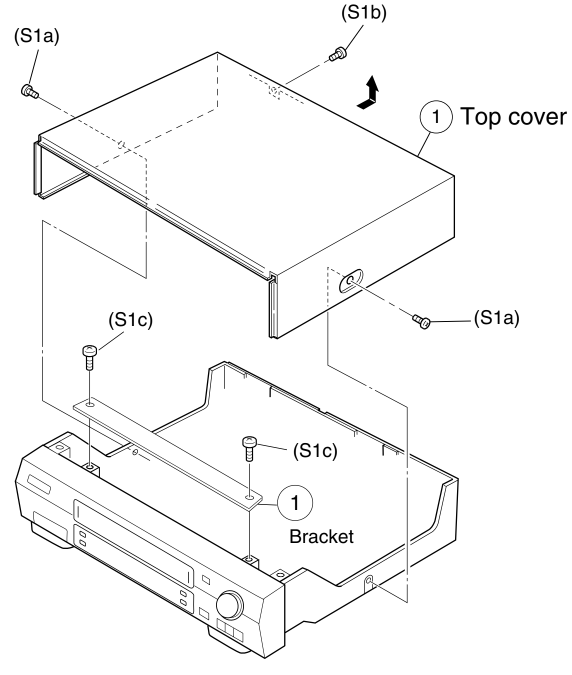
Turn the loading motor pulley in the direction as indicated by Fig.2. As both Ⓐ and Ⓑ levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of Ⓐ, Ⓑ, Ⓑ, Ⓐ. When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

Procedures for Lowering the Cassette holder assembly



(L2)
②
(L2)
(L2)
CN7001
ⓑ <Note 2c>
ⓐ
<Note 2b>
WR2
Foil side
<Note 2a>
[HR-J686EN]

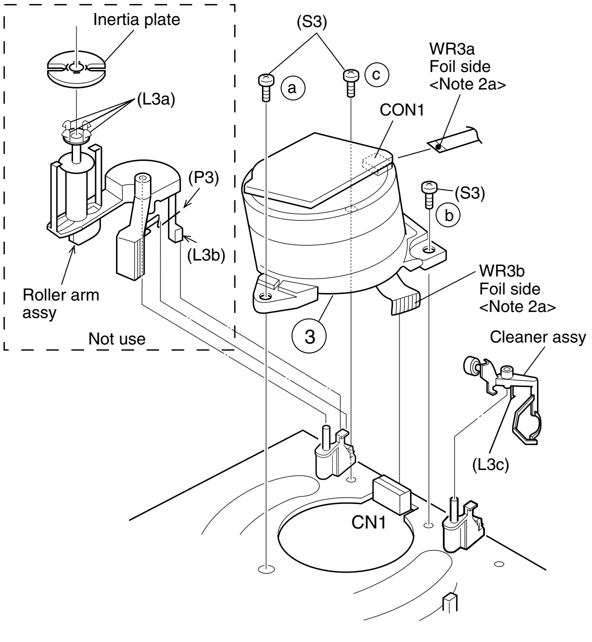
Fig. D2



(S1a)
(S1b)
① Top cover
(S1a)
(S1c)
(S1c)
①
Bracket

Fig. D1

NOTE: When installing the DRUM assembly, secure the screws (S3) in the order of ⓐ , ⓑ , ⓒ .



Inertia plate
(L3a)
(P3)
(L3b)
Roller arm
assy
Not use
(S3)
ⓐ
ⓒ
WR3a
Foil side
<Note 2a>
CON1
(S3)
ⓑ
WR3b
Foil side
<Note 2a>
③
Cleaner assy
(L3c)
CN1

Fig. D3

NOTE: When installing the DRUM assembly, secure the screws (S4a) in the order of ⓐ, ⓑ.

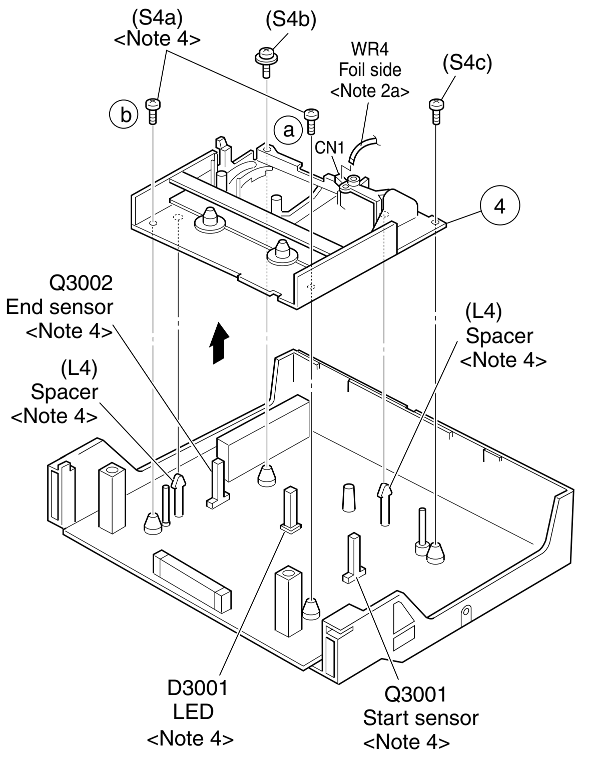

(S4a)
<Note 4>
(S4b)
WR4
Foil side
<Note 2a>
(S4c)
b
a
CN1
4
Q3002
End sensor
<Note 4>
(L4)
Spacer
<Note 4>
(L4)
Spacer
<Note 4>
D3001
LED
<Note 4>
Q3001
Start sensor
<Note 4>

Fig. D4

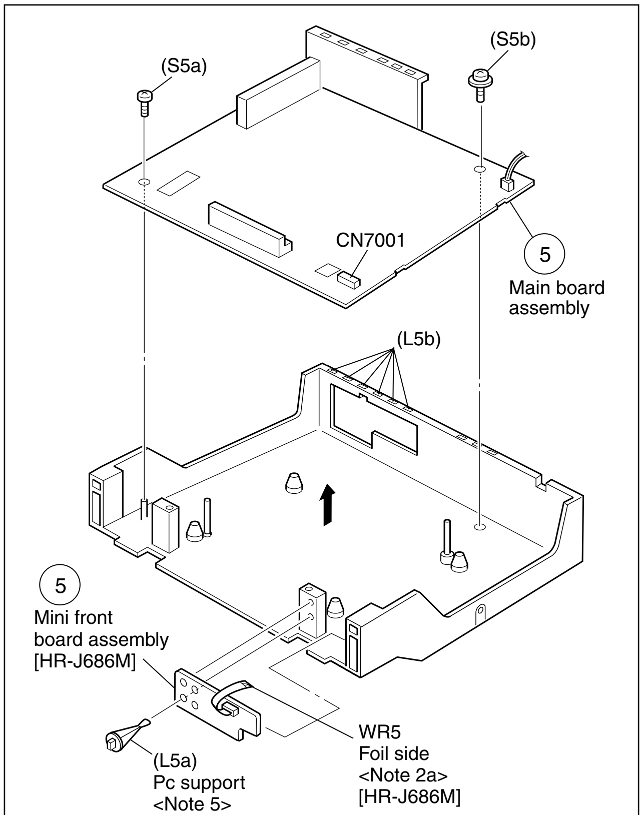

(S5a)
(S5b)
CN7001
5
Main board
assembly
(L5b)
5
Mini front
board assembly
[HR-J686M]
(L5a)
Pc support
<Note 5>
[HR-J686M]
WR5
Foil side
<Note 2a>
[HR-J686M]

Fig. D5

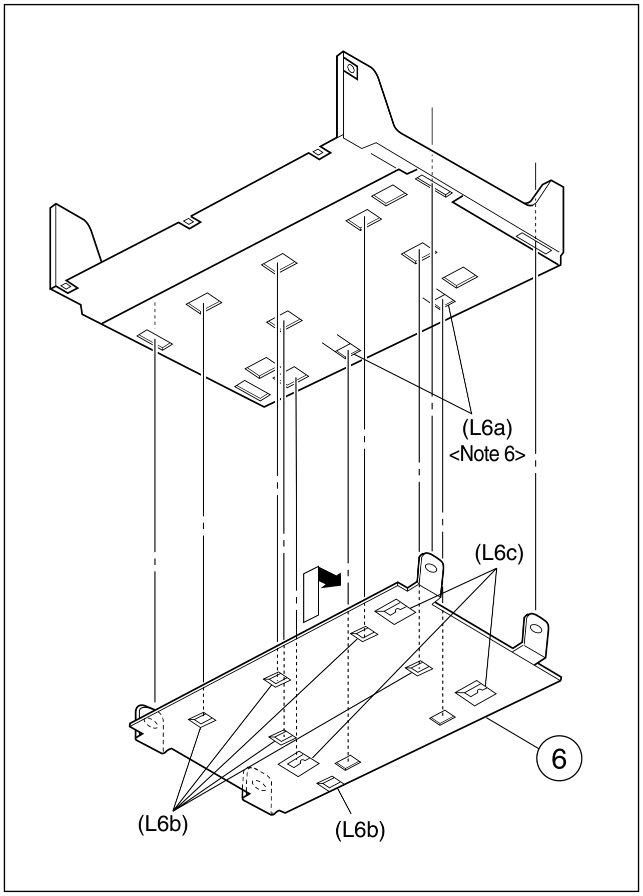

(L6a)
<Note 6>
(L6c)
6
(L6b)
(L6b)

Fig. D6

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Mechanism assembly, this unit is constructed so as to allow the Mechanism and Main board assemblies to be removed together from the Bottom chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

(1) Remove the Top cover, Bracket and Front panel assembly, and remove the Mini front board assembly for HR-J686M. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)

(2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Mechanism assembly. (Refer to the “Procedures for Lowering the Cassette holder assembly” on page 1-2 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)

(3) Take out 2 screws Ⓐ, 1 screw Ⓑ and 1 screw Ⓒ as shown in Fig. 1-4-1.

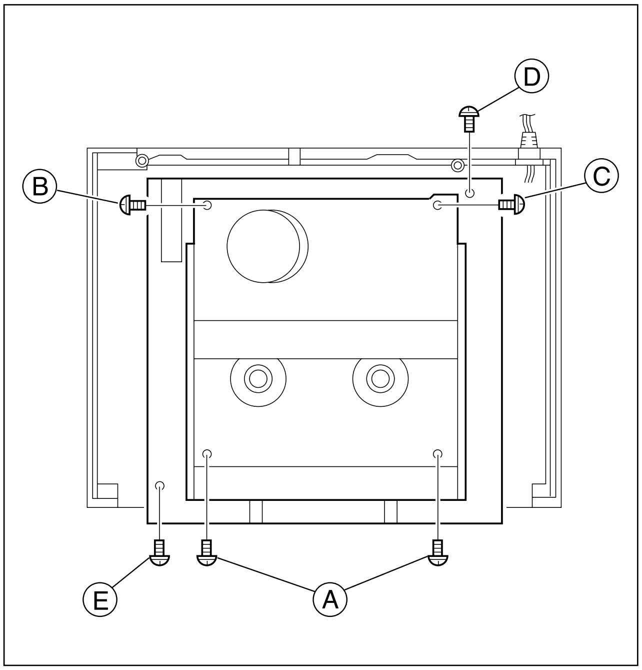


Fig. 1-4-1

(4) Take out 1 screw Ⓓ and 1 screw Ⓔ.

(5) Remove the Main board and Mechanism assemblies together while holding the edge of the Main board assembly. At this stage be careful of the power cord and prongs of the jacks on the back side. (See Fig. 1-4-2.)

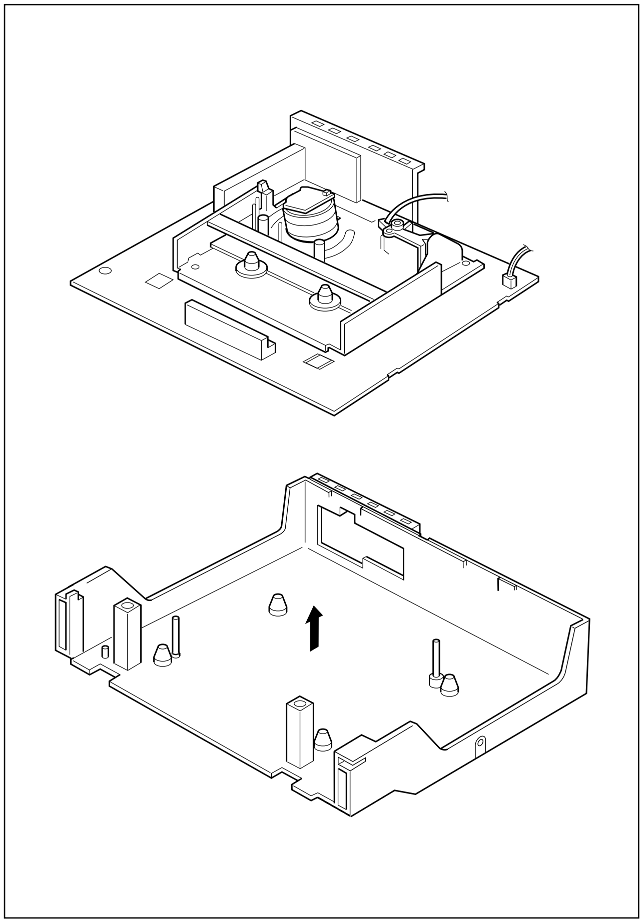


Fig. 1-4-2

(6) Connect the power cord to the wall socket, and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

(7) When performing a diagnosis or repair of the Main board assembly with a cassette tape in place, turn on the power, insert a cassette tape, and turn over the Main board and Mechanism assemblies together.

Note:

- ***When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and Mechanism assemblies.***
  If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.
- ***When performing diagnostics of the tape playback or recording condition in the “SERVICE POSITION”, enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position.***

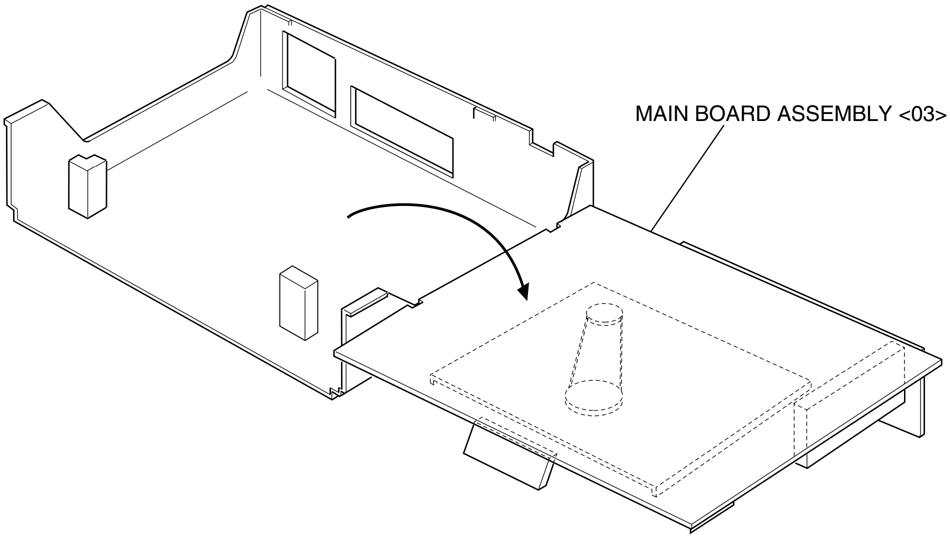

MAIN BOARD ASSEMBLY <03>

Fig. 1-4-3

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Connect TPGND and TP7001(TEST) on the Main board assembly with a jump wire.
(3) Connect VCR to AC.
(4) Press the POWER button.
(5) With lock levers Ⓐ Ⓑ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers Ⓐ Ⓑ , refer to the "Procedures for Lowering the Cassette holder assembly" on page 1-2 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

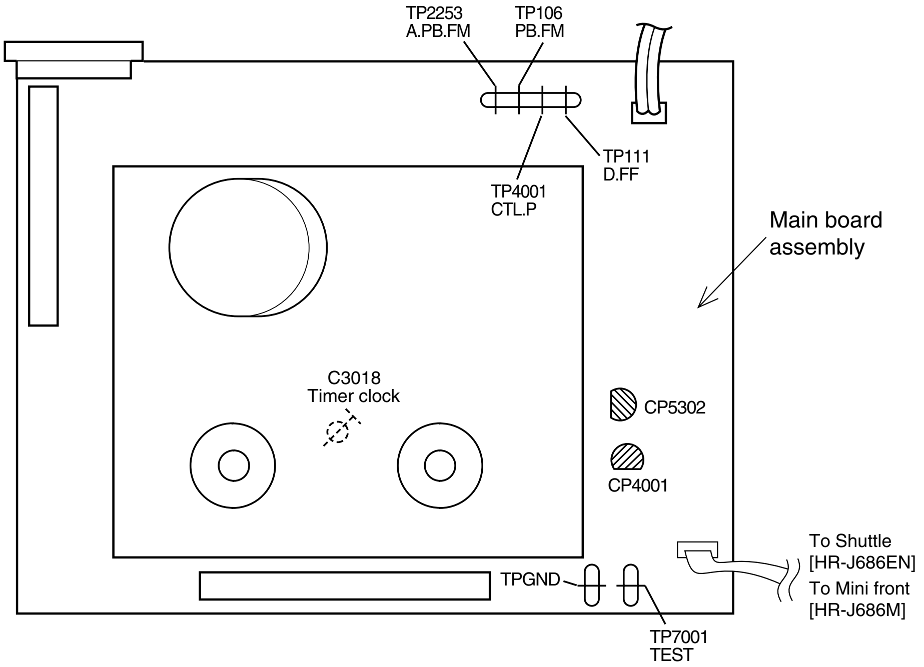
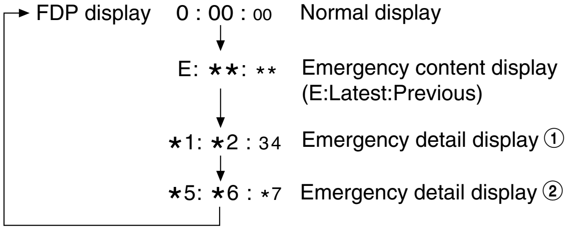

TP2253
A.PB.FM
TP106
PB.FM
TP111
D.FF
TP4001
CTL.P
Main board
assembly
C3018
Timer clock
CP5302
CP4001
To Shuttle
[HR-J686EN]
To Mini front
[HR-J686M]
TPGND
TP7001
TEST

Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This unit has a function for storing the history of the past two emergencies (EMG) and displaying them on each FDP. With the status of the VCR and mechanism at the moment an emergency occurred can also be confirmed.

FDP display switching


FDP display
0 : 00 : 00
Normal display
E: **: **
Emergency content display
(E:Latest:Previous)
*1: *2 : 34
Emergency detail display ①
*5: *6 : *7
Emergency detail display ②

Notes:

- ***The emergency detail display ①② show the information on the latest emergency.***
  It becomes " – – : – – : – –" when there is no latest emergency record.
- ***When using the Jig RCU, set its custom code to match the custom code of the VCR.***

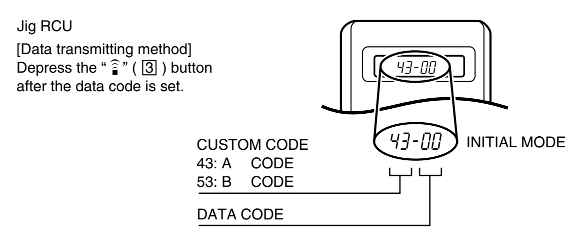

Jig RCU
[Data transmitting method]
Depress the " " (3) button
after the data code is set.
43-00
43-00
INITIAL MODE
CUSTOM CODE
43: A CODE
53: B CODE
DATA CODE

Fig. 1-6-1 Jig RCU [PTU94023B]

1.6.1 Displaying the emergency information

(1) Transmit the code "59" from the Jig RCU.
The FDP shows the emergency content in the form of "E:**:**".

Example 1 E : 01 : 03
Previous emergency
Latest emergency

Example 2 E : – – : – – ← No emergency record

Note:

- ***For the emergency content, see "1.6.3 Emergency content description".***

(2) Transmit the code "59" from the Jig RCU again.
The FDP shows the emergency detail information ① in the form of "*1 : *2 : 34".

*1 : Deck operation mode at the moment of emergency
*2 : Mechanism operation mode at the moment of emergency
3– : Mechanism sensor information at the moment of emergency
–4 : Mechanism mode position at the moment of emergency

Note:

- ***For the emergency detail information ①, see "1.6.4 Emergency detail information ①".***

(3) Transmit the code "59" from the Jig RCU once again.
The FDP shows the emergency detail information② in the form of "*5 : *6 : *7".

*5 : Type of the cassette tape in use ①.
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use ②(Winding area)

Note:

- ***For the emergency detail information ②, see "1.6.5 Emergency detail information ②".***

(4) Transmit the code "59" from the Jig RCU once again to reset the display.

1.6.2 Clearing the emergency history

(1) Display the emergency history.
(2) Transmit the code "36" from the Jig RCU.
(3) Reset the emergency display.

1.6.3 Emergency content description

Note: ***Emergency contents "E08/E09" are for the model with Dynamic Drum (DD).***

FDP	CONTENT	CAUSE
E01: Loading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the loading direction, [E:01] is identified and the power is turned off.	① The mechanism is locked in the middle of mode transition. ② The mechanism is locked at the loading end due to the encoder position reading error during mode transition. ③ Power is not supplied to the loading MDA.
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	① The mechanism is locked in the middle of mode transition. ② The mechanism is locked at the unloading end due to the encoder position reading error during mode transition. ③ Power is not supplied to the loading MDA.
E03: Take Up Reel Pulse EMG	When the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. However, the reel EMG is not detected in STILL/SLOW modes.	① The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1) The idler gear is not meshed with the take-up reel gear; 2) The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3) The take-up reel sensor does not output the FG pulse. ② The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The supply reel sensor does not output the FG pulse. ③ Power is not supplied to the reel sensors.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	① The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. ② The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. ③ The drum control voltage (DRUM CTL V) is not supplied to the MDA. ④ Power is not supplied to the drum MDA.
E05: Cassette Eject EMG	When the eject operation does not complete in 3 seconds after the start, [E:05] is identified, the pinch rollers are turned off and stopped, and the power is turned off. When the cassette insertion operation does not complete in 3 seconds after the start, the cassette is ejected. In addition, when the operation does not complete within 3 seconds after the start, [E:05] is also identified and the power is turned off immediately.	① The cassette cannot be ejected due to a failure in the drive mechanism of the housing. ② When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. ③ The sensor/switch for detecting the end of ejection are not functioning normally. ④ The loading motor drive voltage is lower than specified or power is not supplied to the motor (MDA). ⑤ When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off.However, the capstan EMG is not detected in STILL/SLOW/FF/REW modes.	① The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). ② The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. ③ The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. ④ Power is not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	① The SW 5 V power supply circuit is shorted with GND. ② The SW 12 V power supply circuit is shorted with GND.
E08: DD Initialized (Absolute Position Sensor) EMG	When DD tilting does not complete in 4 seconds, [E:08] is identified, the tilt motor is stopped and the power is turned off.	① The absolute value sensor is defective. (The soldered parts have separated.) ② The pull-up resistor at the absolute sensor output is defective. (The soldered parts have separated.) ③ Contact failure or soldering failure of the pins of the connector (board-to-board) to the absolute value sensor. ④ The absolute value sensor data is not sent to the System Controller CPU.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	① The FG sensor is defective. (The soldered parts have separated.) ② The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) ③ Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. ④ The power to the sensor is not supplied. (Connection failure/soldering failure) ⑤ The FG pulse is not sent to the System Controller CPU. ⑥ The tilt motor is defective. (The soldered parts have separated.) ⑦ The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) ⑧ The tilt motor drive MDA - IC is defective. ⑨ Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). However, note that the reel EMG is not detected in the SLOW/STILL mode.	① The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; 3) The FG pulse output from the supply reel sensor is absent. ② The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; 3) The FG pulse output from the take-up reel sensor is absent. ③ The power to a reel sensor is not supplied.
EC1 or EU1: Head clog warning	Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:C1] or [E:U1] is identified and recorded in the emergency history. During the period in which a head clog is detected, the FDP and OSD repeat the "3-second warning display" and "7-second noise picture display" alternately. EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette." The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.	

Table 1-6-1

1.6.4 Emergency detail information ①

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest emergency can be confirmed based on the figure in EMG detail information ①.

[FDP display]

∗1 : ∗2 : 34

∗1 : Deck operation mode at the moment of emergency
∗2 : Mechanism operation mode at the moment of emergency
3– : Mechanism sensor information at the moment of emergency
–4 : Mechanism mode position at the moment of emergency

Note:

- ***In the Deck operation mode/Mechanism operation mode/ Mechanism mode position, the contents of the code that is shown on the FDP differs depending on the parts number of the System Control microprocessor (IC3001) of the VCR.***
  For the microprocessor parts number that starts with the two letters "MN", refer to the Table of MN and for parts number with "HD", refer to the Table of HD.

∗1 : Deck Operation Mode

[Table of MN]

Display	Deck Operation Mode
00	Mechanism being initialized
01	STOP with pinch roller pressure off (or tape present with P.OFF)
02	STOP with pinch roller pressure on
03	POWER OFF as a result of EMG
04	PLAY
0C	REC
10	Cassette ejected
20	FF
21	Tape fully loaded, START sensor ON, short FF
22	Cassette identification FWD SEARCH before transition to FF (SP x7-speed)
24	FWD SEARCH (variable speed) including x2-speed
2C	INSERT REC
40	REW
42	Cassette identification REV SEARCH before transition to REW (SP x7-speed)
44	REV SEARCH (variable speed)
4C	AUDIO DUB
6C	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8C	REC PAUSE
8D	Back spacing
8E	Forward spacing (FWD transport mode with BEST function)
AC	INSERT REC PAUSE
AD	INSERT REC Back spacing
CC	AUDIO DUB PAUSE
CD	AUDIO DUB Back spacing
EC	INSERT REC (VIDEO + AUDIO) PAUSE
ED	INSERT REC (VIDEO + AUDIO) Back spacing

[Table of HD]

Display	Deck Operation Mode
00	STOP with pinch roller pressure off (or tape present with P.OFF)
01	STOP with pinch roller pressure on
04	PLAY
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH (variable speed)
4C	AUDIO DUB
6E	INSERT REC (VIDEO+AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO+AUDIO) PAUSE

∗2 : Mechanism Operation Mode

[Table of MN]

Display	Mechanism Operation Mode
00	Command standby (Status without executing command)
02	POWER OFF by EMG occurrence
04	Moving to the adjacent position in the LOAD direction
06	Moving to the adjacent position in the UNLOAD direction
08	Cassette ejection being executed
0A	Cassette insertion being executed
0C	Tape being loaded
0E	Tape being unloaded
10	Mode transition to STOP with pinch roller compression ON
12	Mode transition to STOP with pinch roller compression OFF
14	Mode transition to STOP with pinch roller compression OFF as a result of POWER OFF
16	Mode transition to STOP with pinch roller compression ON as a result of POWER ON
18	Mode transition to PLAY
1A	Mode transition to FWD SEARCH
1C	Mode transition to REC
1E	Mode transition to FWD STILL/SLOW
20	Mode transition to REV STILL/SLOW
22	Mode transition to REV SEARCH
24	Mode transition from FF/REW to STOP
26	Mode transition to FF
28	Mode transition to REW
2A	4 sec. of REV as a result of END sensor going ON during loading
2C	Short FF/REV as a result of tape sensor going ON during unloading
2E	Mechanism position being corrected due to overrun
80	Mechanism in initial position (Dummy command)

[Table of HD]

Display	Mechanism Operation Mode
00	STOP with pinch roller pressure off
01	STOP with pinch roller pressure on
02	U/L STOP (or tape being loaded)
04	PLAY
05	PLAY (x1-speed playback using JOG)
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH
4C	AUDIO DUB
6E	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
C7	REV SEARCH (x1-speed reverse playback using JOG)
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO + AUDIO) PAUSE
F0	Mechanism being initialized
F1	POWER OFF as a result of EMG
F2	Cassette being inserted
F3	Cassette being ejected
F4	Transition from STOP with pinch roller pressure on to STOP with pinch roller pressure off
F5	Transition from STOP with pinch roller pressure on to PLAY
F6	Transition from STOP with pinch roller pressure on to REC
F7	Cassette type detection SEARCH before FF/REW is being executed
F8	Tape being unloaded
F9	Transition from STOP with pinch roller pressure off to STOP with pinch roller pressure on
FA	Transition from STOP with pinch roller pressure off to FF/REW
FB	Transition from STOP with pinch roller pressure off to REC.P (T.REC,etc.)
FC	Transition from STOP with pinch roller pressure off to cassette type detection SEARCH
FD	Short REV being executed after END sensor on during unloading
FE	Tension loosening being executed after tape loading (STOP with pinch roller pressure on)

3– : Mechanism Sensor Information
[Common table of MN and HD]

Display	Mechanism Sensor Information			
	S-VHS SW	REC SAFETY SW	START SENSOR	END SENSOR
0–	VHS	Tab broken	ON	ON
1–	VHS	Tab broken	ON	OFF
2–	VHS	Tab broken	OFF	ON
3–	VHS	Tab broken	OFF	OFF
4–	VHS	Tab present	ON	ON
5–	VHS	Tab present	ON	OFF
6–	VHS	Tab present	OFF	ON
7–	VHS	Tab present	OFF	OFF
8–	S-VHS	Tab broken	ON	ON
9–	S-VHS	Tab broken	ON	OFF
A–	S-VHS	Tab broken	OFF	ON
B–	S-VHS	Tab broken	OFF	OFF
C–	S-VHS	Tab present	ON	ON
D–	S-VHS	Tab present	ON	OFF
E–	S-VHS	Tab present	OFF	ON
F–	S-VHS	Tab present	OFF	OFF

–4 : Mechanism Mode Position
[Table of MN]

Display	Mechanism Mode Position
-0	Initial value
-1	EJECT position
-2	Housing operating
-3	U/L STOP position
-4	Tape being loaded/unloaded (When the pole base is located on the front side of the position just beside the drum)
-5	Tape being loaded/unloaded (When the pole base is located on the rear side of the position just beside the drum)
-6	Pole base compressed position
-7	FF/REW position
-8	Between FF/REW and STOP with pinch roller compression ON
-9	STOP with pinch roller compression OFF
-A	Between STOP with pinch roller compression OFF and REV
-B	REV (REV STILL/SLOW) position
-C	Between REV and FWD
-D	FWD (FWD STILL/SLOW) position
-E	Between FWD and PLAY
-F	PLAY position

[Table of HD]

Display	Mechanism Mode Position
–0	EJECT position
–1	U/L STOP position
–2	Tape being loaded/unloaded (When the pole base is located on the rear side of the position just beside the drum)
–3	FF/REW position
–4	STOP with pinch roller pressure off
–5	REV (REV STILL/SLOW) position
–6	FWD (FWD STILL/SLOW) position, PLAY position
–7	Intermediate position during transition between other mechanism modes

Note:

- ***As the display is always "–7" at any intermediate position between mechanism modes, the position of transitory EMG may sometimes not be locatable.***

1.6.5 Emergency detail information ②

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information ②.

[FDP display]

⁎5 : ⁎6 : ⁎7

⁎5 : Type of the cassette tape in use ①
⁎6 : Winding position of the cassette tape in use
⁎7 : Type of the cassette tape in use ②(Winding area)

Note:

- ***EMG detail information② is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.***

⁎5 : Cassette tape type ①

Display	Cassette Tape Type ①
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified/thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified/thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

Notes:

- ***Cassette tape type ① is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.***
- ***If other value than those listed in the above table is displayed, the cassette tape type is not identified.***

⁎6 : Cassette tape winding position

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 22 sections using a hex number from "00" to "15".

"00" : End of winding
"15" : Beginning of winding
"FF" : Tape position not identified

⁎7 : Cassette tape type ② (Winding area)

Display	Cassette Tape Type ②	
00	Cassette type not identified	
07	Small reel, thick tape	T-5
08 - 0E	C cassette, thick tape	TC-10
09 - 15	C cassette, thick tape	TC-20P
0A - 0B	Small reel, thick tape	T-20
0A - 16	C cassette, thin tape	TC-30
0A - 16	C cassette, thin tape	TC-40
0D - 0F	Small reel, thick tape	T-40
11 - 14	Small reel, thick tape	T-60
15 - 18	Small reel, thick tape	T-80/DF-160
17 - 1A	Small reel, thick tape	T-80/DF-180
19 - 1D	Small reel, thick tape	T-100
1D - 21	Small reel, thick tape	T-120/DF-240
1E - 1F	Small reel, thin tape	T-140
1F - 23	Small reel, thick tape	T-130
21 - 23	Small reel, thin tape	T-160
21 - 23	Small reel, thin tape	T-168
22 - 24	Small reel, thick tape	DF-300
22 - 24	Small reel, thin tape	T-180/DF-380
22 - 24	Small reel, thin tape	T-210/DF-420
22 - 23	Large reel	T-5
23 - 24	Large reel	T-10
25 - 26	Large reel	T-20
27 - 29	Large reel	T-30
29 - 2B	Large reel	T-40
2D - 2F	Large reel	T-60

Note:

- ***The values of cassette tape type ② in the above table are typical values with representative cassette tapes.***

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001)

PIN NO.	LABEL	IN/OUT	FUNCTION
1	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
2	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
3	PAUSE/COMPU_IN	-	NC
4	EV_MASK/BS_P.CTL	-	NC
5	RC	IN	REMOTE CONTROL DATA INPUT
6	NC	-	NC
7	TU_CLK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
8	TU_DATA	OUT	TUNING DATA
9	TU_CE	OUT	CHIP ENABLE OF THE TUNER UNIT
10	LMC1	OUT	LOADING MOTOR DRIVE (1)
11	LMC2	OUT	LOADING MOTOR DRIVE (2)
12	EP(H)	-	NC
13	RMO/R-Y_REV.	OUT	NC/PAL EP MODE CONTROL [HR-J686M]
14	BIL_SEL/A.EVENT_DET	-	NC
15	CONV_CTL(H)	OUT	R/F CONVERTER ON/OFF (ON:H, OFF:L)
16	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
17	I2C_DATA	IN/OUT	I/O DATA FOR THE MEMORY IC
18	I2C_CLK/TEST	OUT	SERIAL DATA TRANSFER CLOCK FOR THE MEMORY IC/MECHANISM TEST SIGNAL
19	SP_SHORT(H)	OUT	MODE SELECT [HR-J686EN]
20	EP_SHORT(H)	OUT	MODE SELECT [HR-J686EN]
21	SB_GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
22	CAP_REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
23	D.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
24	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
25	RESET	-	RESET TERMINAL (RESET ON:L)
26	A.FF	OUT	AUDIO FF OUTPUT
27	N.REC_ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
28	CHARA	-	NC
29	AGC_CTL/SLOW_PULSE	OUT	DETECTION SIGNAL FOR AGC
30	H.REC_ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
31	TU_MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
32	NC	-	NC
33	CAP_CTL_V	OUT	CAPSTAN MOTOR CONTROL
34	DRUM_CTL_V	OUT	DRUM MOTOR CONTROL
35	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
36	VDD	-	SYSTEM POWER
37	X OUT	-	MAIN SYSTEM CLOCK (14.32MHz)
38	X IN	-	MAIN SYSTEM CLOCK (14.32MHz)
39	VSS	-	GND
40	XC IN	-	TIMER CLOCK (32.768kHz)
41	XC OUT	-	TIMER CLOCK (32.768kHz)
42	CLK SEL	IN	SELECT FOR BACKUP METHOD (LITHIUM OR E.CAP):H
43	P.MUTE(L)	-	NC
44	V_UP(H)	OUT	HIGH SPEED FF/REW AND TURBO SEARCH MODE:H
45	SYNC_DET	-	NC
46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
47	VIDEO_OUT	OUT	COMPOSITE VIDEO SIGNAL OUTPUT
48	VSS2	-	GND
49	CVIN	IN	COMPOSITE VIDEO SIGNAL INPUT
50	SYN_IN	IN	COMPOSITE SYNCHRONIZING SIGNAL FOR SERVO, VERTICAL SYNCHRONIZING SIGNAL FOR OSD
51	VDD2	-	SYSTEM POWER
52	AFCC	IN	FILTER INPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
53	AFCLPF	OUT	FILTER INPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
54	FSCI/BIT_IN(H)	IN	FSC INPUT FOR OSD/NC
55	FSCLPF/ANT.CTL	OUT	FSC OUTPUT FOR OSD/NC

PIN NO.	LABEL	IN/OUT	FUNCTION
56	I2C_DATA_A/V	IN/OUT	I/O DATA FOR MEMORY IC
57	I2C_CLK_A/V	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
58	NC	-	NC
59	NC	-	NC
60	LMC3	OUT	LOADING MOTOR DRIVE(3)
61	LSA	IN	MECHANISM MODE DETECT(A)
62	LSB	IN	MECHANISM MODE DETECT(B)
63	LSC	IN	MECHANISM MODE DETECT(C)
64	NC	-	NC
65	D.FG_IN	IN	DRUM FG PULSE INPUT
66	D.PG_IN	IN	DRUM PICKUP PULSE INPUT(SWITCHING PULSE)
67	C.FG_AMP_OUT	OUT	SET-UP OUTPUT FOR CAPSTAN FG AMPLIFICATION FACTOR
68	C.FG_IN	IN	CAPSTAN FG PULSE INPUT
69	AMP_VREF_OUT	OUT	AMP CIRCUIT REFERENCE VOLTAGE OUTPUT
70	AMP_VREF_IN	IN	AMP CIRCUIT REFERENCE VOLTAGE INPUT
71	AVSS	-	GND
72	AMP_C	IN	CAPACITOR CONNECT TERMINAL FOR CTL AMP CIRCUIT
73	AVCC	-	SYSTEM POWER
74	CTL_+	IN/OUT	CTL(+) SIGNAL
75	CTL_-	IN/OUT	CTL(-) SIGNAL
76	CTL_AMP_OUT	OUT	CTL PULSE OUTPUT
77	LOCK(L)	IN	TUNING PLL LOCK DETECT:L
78	BS_ANT/KILLER_OUT	IN	NC/COLOR KILLER DETECT [HR-J686M]
79	START_SENSOR	IN	START SENSOR
80	FULLE.ON(H)	-	NC
81	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
82	COMPU_OUT	-	NC
83	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
84	A_ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE: L
85	END_SENSOR	IN	END SENSOR
86	AFC/JUST_CLK	IN	TUNING CHECK/NC
87	SW2/LED	-	NC
88	IND(L)	IN	AUDIO INPUT (LCH) FOR THE FDP AUDIO INDICATOR [HR-J686EN]
89	IND(R)	IN	AUDIO INPUT (RCH) FOR THE FDP AUDIO INDICATOR [HR-J686EN]
90	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
91	P.SAVE(L)	-	NC
92	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL (REC:H)
93	NC	-	NC
94	PROTECT	IN	DETECTION SIGNAL FOR SW. POWER SUPPLY
95	STB	OUT	STROBE (FOR FDP DRIVER)
96	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
97	S_DATA_FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
98	S_DATA_TOSYS	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO THE FDP DRIVER
99	JSA	IN	INPUT FOR SHUTTLE [HR-J686EN]
100	JSB	IN	INPUT FOR SHUTTLE [HR-J686EN]

SECTION 2
MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

(1) Unplug the power cable of the main unit before using your soldering iron.
(2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
(3) Do not randomly handle the parts without identifying where the trouble is.
(4) Exercise enough care not to damage the lugs, etc. during the repair work.
(5) When installing the front panel assembly, be sure to hook the lug on the back side of the cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE.)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(2) Unload the cassette by manually turning the loading motor of the mechanism assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-3a.)
(3) Bring the pole base assembly (supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
(4) Move the top guide toward the drum while holding down the lug Ⓐ of the bracket retaining the top guide. Likewise hold part Ⓑ down and remove the top guide.
Section Ⓒ of the top guide is then brought under the cassette lid. Then remove the top guide by pressing the whole cassette tape down. (See Fig.2-1-3b.)
(5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

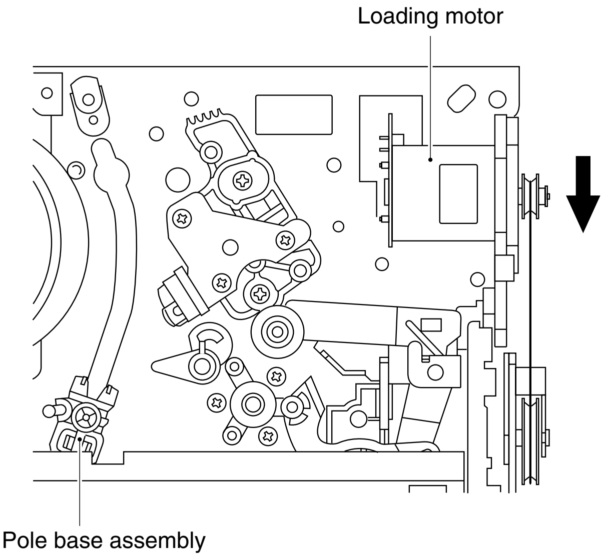


Fig. 2-1-3a

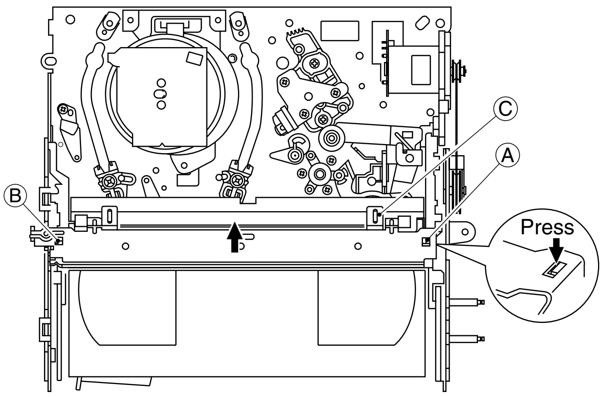


Fig. 2-1-3b

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, front panel assembly and others so that the mechanism assembly is visible. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(2) While keeping the tension arm assembly of the mechanism assembly free from tension, pull the tape on the pole base assembly (supply or take-up side) out of the guide roller. (See Fig.2-1-3c.)
(3) Take the spring of the pinch roller arm assembly off the hook of the press lever assembly, and detach it from the tape. (See Fig.2-1-3d.)
(4) In the same way as in the electrical failure instructions in 2.1.3-1(4), remove the top guide.
(5) Raise the cassette tape cover. By keeping it in that position, draw out the cassette tape case from the cassette holder and take out the tape.
(6) By hanging the pinch roller arm assembly spring back on the hook, take up the slack of the tape into the cassette.

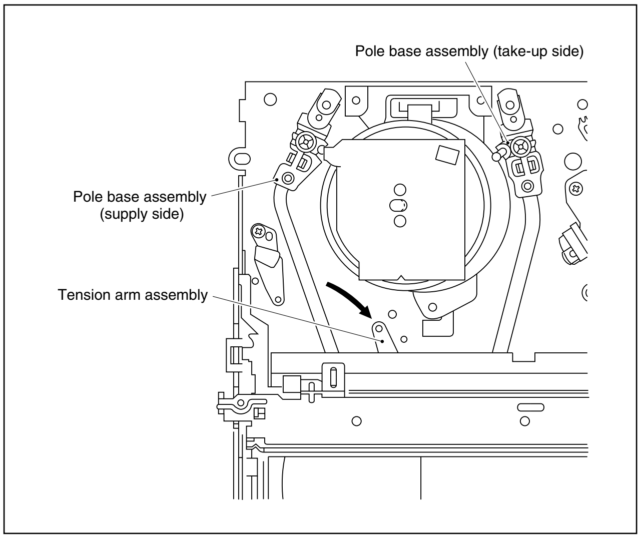

Pole base assembly (take-up side)
Pole base assembly (supply side)
Tension arm assembly

Fig. 2-1-3c

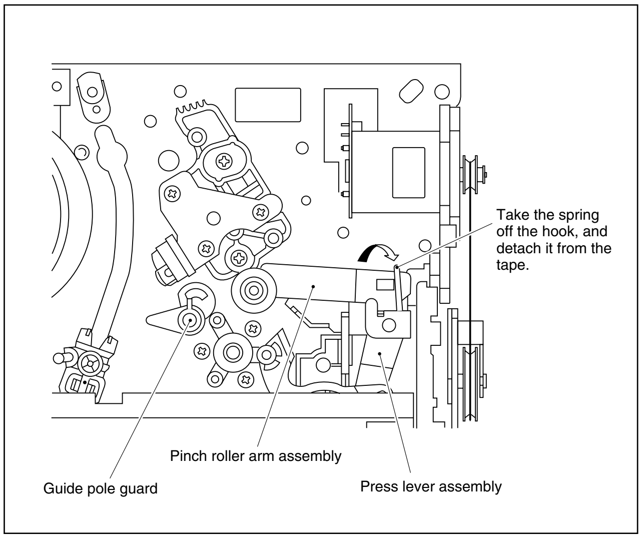
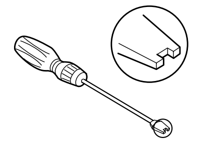
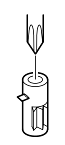
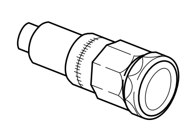
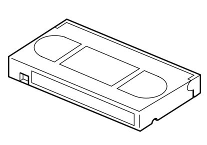
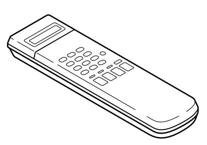
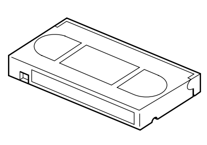
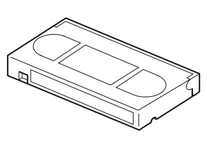
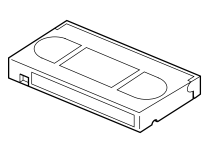
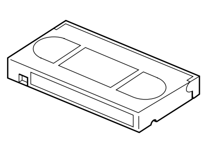

Take the spring off the hook, and detach it from the tape.
Pinch roller arm assembly
Guide pole guard
Press lever assembly

Fig. 2-1-3d

2.1.4 Jigs and Tools Required for Adjustment

Roller driver PTU94002	A/C head positioning tool PTU94010	Torque gauge PUJ48075-2
		
Back tension cassette gauge PUJ48076-2	Jig RCU PTU94023B	
		
Alignment tape (SP, stairstep, NTSC) MHP	Alignment tape (EP, stairstep, NTSC) MHP-L	
		
Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L	
		

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

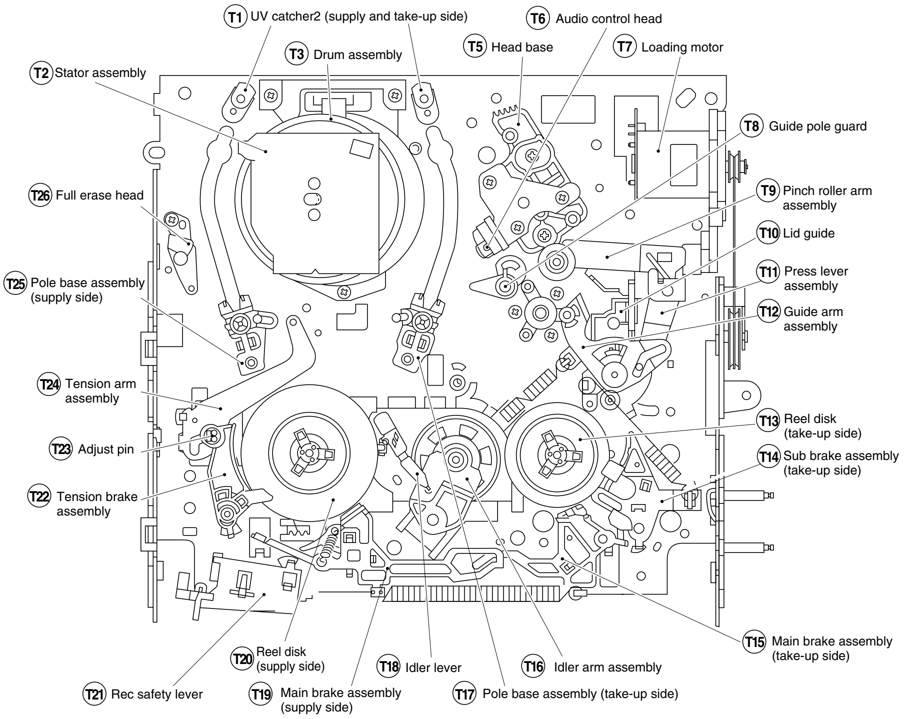
In this chapter, the two mechanism speeds are described by comparing the speeds of the standard type and the high-speed FF/REW type.

It is possible to distinguish between these two types of mechanism by the diameters of their capstan pulleys.

The capstan pulley diameter for the standard type is approx. 32 mm.

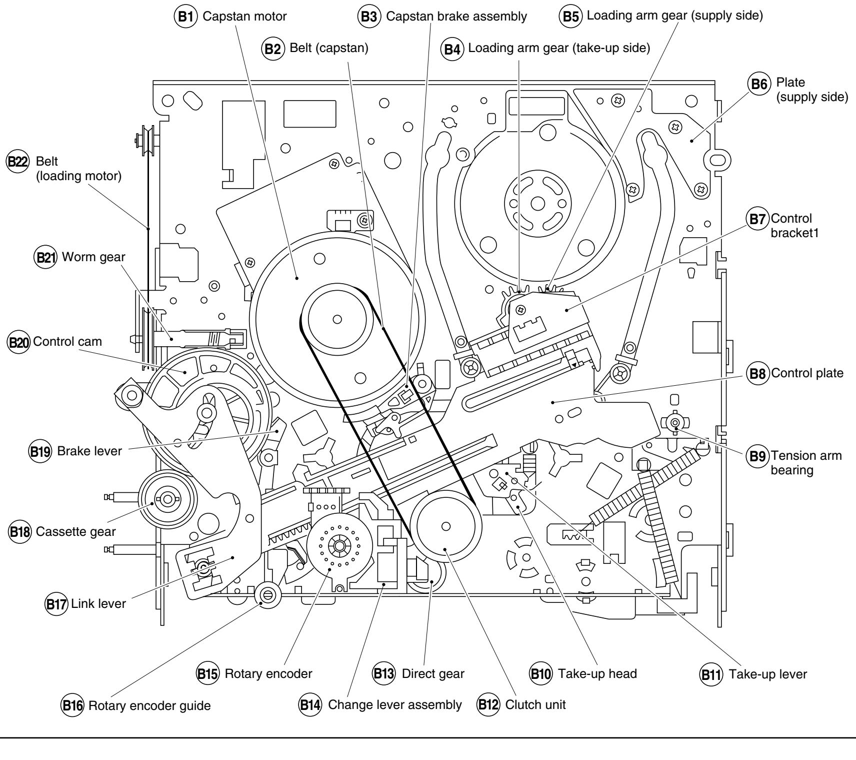
The capstan pulley diameter for the high-speed FF/REW type is approx. 43 mm.

For information on the different parts used in the two mechanism types, please refer to the “Replacement of major parts”.



T1 UV catcher2 (supply and take-up side)
T6 Audio control head
T3 Drum assembly
T5 Head base
T7 Loading motor
T2 Stator assembly
T8 Guide pole guard
T26 Full erase head
T9 Pinch roller arm assembly
T10 Lid guide
T25 Pole base assembly (supply side)
T11 Press lever assembly
T12 Guide arm assembly
T24 Tension arm assembly
T13 Reel disk (take-up side)
T23 Adjust pin
T14 Sub brake assembly (take-up side)
T22 Tension brake assembly
T15 Main brake assembly (take-up side)
T20 Reel disk (supply side)
T18 Idler lever
T16 Idler arm assembly
T21 Rec safety lever
T19 Main brake assembly (supply side)
T17 Pole base assembly (take-up side)

Fig. 2-1-5a Mechanism assembly top side



B1 Capstan motor
B3 Capstan brake assembly
B5 Loading arm gear (supply side)
B2 Belt (capstan)
B4 Loading arm gear (take-up side)
B6 Plate (supply side)
B22 Belt (loading motor)
B7 Control bracket1
B21 Worm gear
B20 Control cam
B8 Control plate
B19 Brake lever
B9 Tension arm bearing
B18 Cassette gear
B17 Link lever
B15 Rotary encoder
B13 Direct gear
B10 Take-up head
B11 Take-up lever
B16 Rotary encoder guide
B14 Change lever assembly
B12 Clutch unit

Fig. 2-1-5b Mechanism assembly bottom side

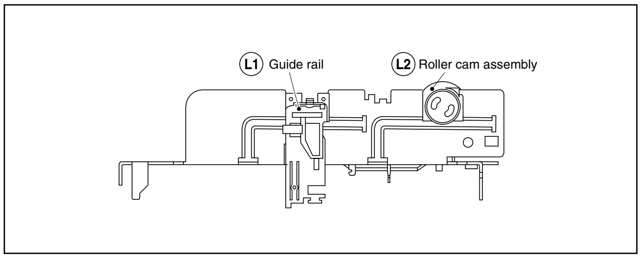


Fig. 2-1-5c Mechanism assembly left side

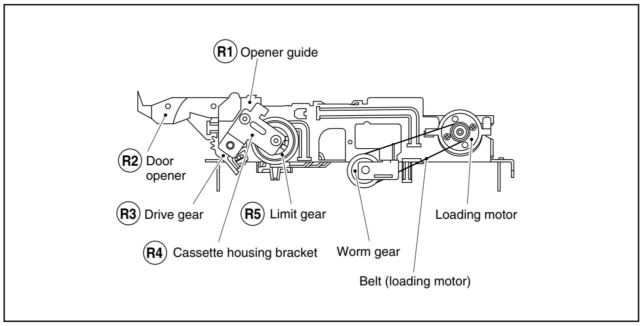


Fig. 2-1-5d Mechanism assembly right side

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note:

- ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

Note:

- ***See the "mechanism assembly" diagram of the parts list for the lubricating or greasing spots, and for the types of oil or grease to be used.***

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake assembly		○
	Main brake assembly		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear		○
	Control plate		○
Other	Brush	★○	★○
	Tension brake assembly	○	○
	Rotary encoder		○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-1-5a

5. Disassembling procedure table

The following table indicates the order in which parts are removed for replacement. To replace parts, remove them in the order of 1 to 18 as shown in the table. To install them, reverse the removal sequence.

The symbols and numbers preceding the individual part names represent the numbers in the "Location of major mechanical parts" table. Also, the "T", "B", and "T/B" on the right of each part name shows that the particular part is removed from the front, from the back, and from both sides of the mechanism, respectively.

	Symbols and numbers			L1	L2	R4	R1	–	–	R3	–	T9	T12	T11	T1	B15	B12	B14	B13	–	B17	B21	B7	B8	B5	B4	B11	T14	T15	T13	T22	T24	T18	B19
Symbols and numbers	Removal parts (Reference items) Replacement parts	Front (T)/Back (B) of mechanism	Number of removal steps	Guide rail	Roller cam assembly	Cassette housing bracket	Opener guide	Relay gear	Cassette holder assembly	Drive gear	Drive arm	Pinch roller arm assembly	Guide arm assembly	Press lever assembly	UV catcher2	Rotary encoder	Clutch unit	Change lever assembly	Direct gear	Clutch gear	Link lever	Worm gear	Control bracket1	Control plate	Loading arm gear (supply side)	Loading arm gear (take-up side)	Take-up lever	Sub brake assembly (take-up side)	Main brake assembly (take-up side)	Reel disk (take-up side)	Tension brake assembly	Tension arm assembly	Idler lever	Brake lever (*1)
L1	2.2.3 Guide rail	T	1																															
L2	2.2.3 Roller cam assembly	T	1																															
R4	2.2.3 Cassette housing bracket	T	1																															
R1	2.2.3 Opener guide	T	2			1																												
R2	2.2.3 Door opener	T	3			1	2																											
–	2.2.3 Relay gear	T	3			1	2																											
R5	2.2.3 Limit gear	T	3			1	2																											
–	2.2.3 Cassette holder assembly	T	6	1	2	3	4	5																										
R3	2.2.3 Drive gear	T	4			1	2	3																										
–	2.2.3 Drive arm	T	8	1	2	3	4	5	6	7																								
T9	2.2.4 Pinch roller arm assembly	T	1																															
T12	2.2.5 Guide arm assembly	T	1																															
T11	2.2.5 Press lever assembly	T	3									1	2																					
T6	2.2.6 Audio control head	T	1																															
T7	2.2.7 Loading motor	T	1																															
B1	2.2.8 Capstan motor	T/B	1																															
T1	2.2.9 UV catcher2	T	1																															
T17	2.2.9 Pole base assembly (take-up side)	T/B	2												1																			
T25	2.2.9 Pole base assembly (supply side)	T/B	2												1																			
B15	2.2.10 Rotary encoder	B	1																															
B12	2.2.11 Clutch unit	B	1																															
B14	2.2.12 Change lever assembly	B	3													1	2																	
B13	2.2.12 Direct gear	B	4													1	2	3																
–	2.2.12 Clutch gear	B	5													1	2	3	4															
–	2.2.12 Coupling gear (*2)	B	6													1	2	3	4	5														
B17	2.2.13 Link lever	B	1																															
B18	2.2.14 Cassette gear	B	2																		1													
B20	2.2.14 Control cam	B	2																		1													
B21	2.2.14 Worm gear	B	1																															
T10	- Lid guide	T/B	5									1	2	3								4												
B7	2.2.15 Control bracket1	B	1																															
B8	2.2.15 Control plate	B	6													1	2	3			4		5											
B5	2.2.16 Loading arm gear (supply side)	B	7													1	2	3			4		5	6										
B4	2.2.16 Loading arm gear (take-up side)	B	8													1	2	3			4		5	6	7									
–	2.2.16 Loading arm gear shaft	B	9													1	2	3			4		5	6	7	8								
B11	2.2.17 Take-up lever	T/B	7													1	2	3			4		5	6										
B10	2.2.17 Take-up head	T/B	8													1	2	3			4		5	6			7							
–	2.2.17 Control plate guide	T/B	8													1	2	3			4		5	6			7							
B3	2.2.18 Capstan brake assembly	T/B	7													1	2	3			4		5	6										
T14	2.2.19 Sub brake assembly(take-up side)	T/B	15	1	2	3	4	5	6	7	8					9	10	11			12		13	14										
T15	2.2.20 Main brake assembly(take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15						
T19	2.2.20 Main brake assembly(supply side)	T/B	9	1	2	3	4	5	6	7	8																							
T13	2.2.20 Reel disk (take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15						
T22	2.2.21 Tension brake assembly	T/B	9	1	2	3	4	5	6	7	8																							
T20	2.2.21 Reel disk (supply side)	T/B	10	1	2	3	4	5	6	7	8																				9			
T24	2.2.21 Tension arm assembly	T/B	10	1	2	3	4	5	6	7	8																				9			
B9	2.2.21 Tension arm bearing	T/B	10	1	2	3	4	5	6	7	8																				9			
T18	2.2.22 Idler lever	T/B	17	1	2	3	4	5	6	7	8					9	10	11			12		13	14							15	16		
T16	2.2.22 Idler arm assembly	T/B	18	1	2	3	4	5	6	7	8					9	10	11			12		13	14							15	16	17	
B19	- Brake lever (*1)	T/B	18	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15	16	17				
B16	- Rotary encoder guide	T/B	19	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15	16	17				18

Table 2-1-5b

Note:

- ***The parts with marked (*) have different types of mechanisms (standard type or high-speed FF/REW type).***
  - ****1 : Uses the standard type mechanism only.***
  - ****2 : Uses the high-speed FF/REW type mechanism only.***

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling (Phase matching between mechanical parts)

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.

Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm gear, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.

Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as the drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another. (For information on phase matching of the mechanism, see the instructions on how to install individual parts.)

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.

This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the mechanism assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY.) Turn the worm gear toward the front so that the guide hole of the control cam is brought into alignment with the hole at the mechanism assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-2a.)

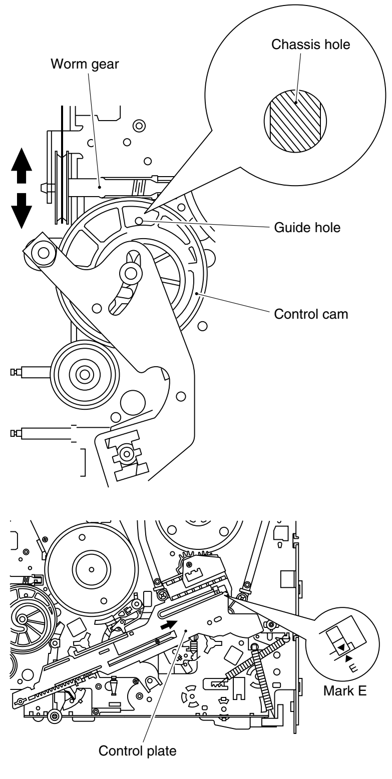

Chassis hole
Worm gear
Guide hole
Control cam
E
Mark E
Control plate

Fig. 2-2-2a

2.2.3 Cassette Holder Assembly

1. How to remove

(1) Remove the guide rail and roller cam assembly. (See Fig.2-2-3a.)
(3 lugs on the guide rail and one lug on the roller cam assembly)

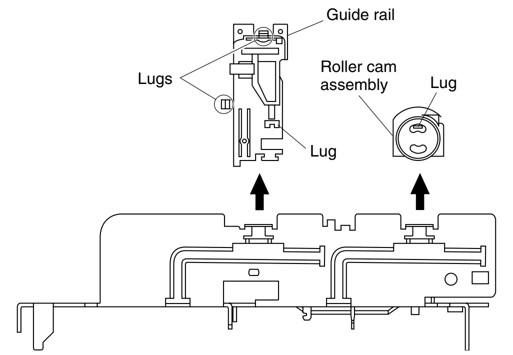

Guide rail
Lugs
Roller cam assembly
Lug
Lug

Fig. 2-2-3a

(2) Remove the two slit washers and remove the cassette housing bracket. (See Fig.2-2-3b.)

(3) Remove the opener guide, spring(A), door opener, relay gear and limit gear. (See Fig.2-2-3b.)

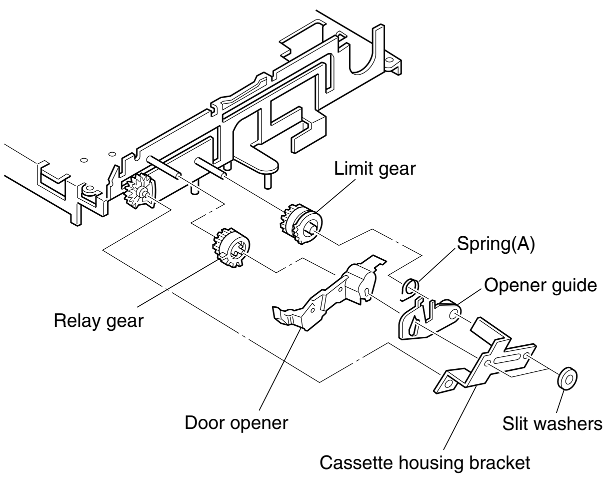

Limit gear
Spring(A)
Opener guide
Relay gear
Door opener
Slit washers
Cassette housing bracket

Fig. 2-2-3b

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the roller cam assembly have been removed (so that the drive arm is upright). (See Fig.2-2-3c.)

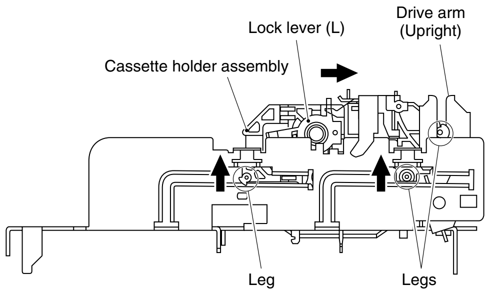

Drive arm (Upright)
Lock lever (L)
Cassette holder assembly
Leg
Legs

Fig. 2-2-3c

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs Ⓐ and Ⓑ on the right side out of the rail and also pull up the leg Ⓒ. (See Fig.2-2-3d and Fig.2-2-3e.)

(6) Draw out the drive gear, and remove the drive arm.

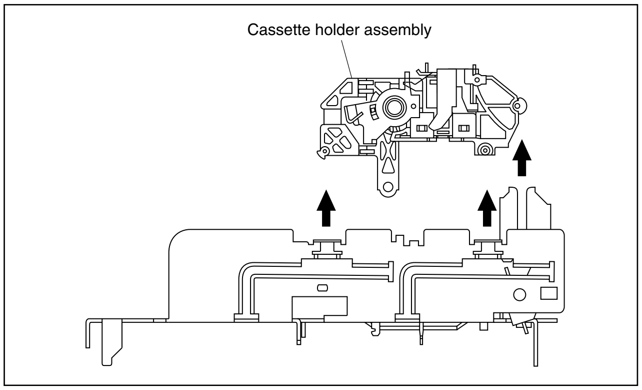

Cassette holder assembly

Fig. 2-2-3d

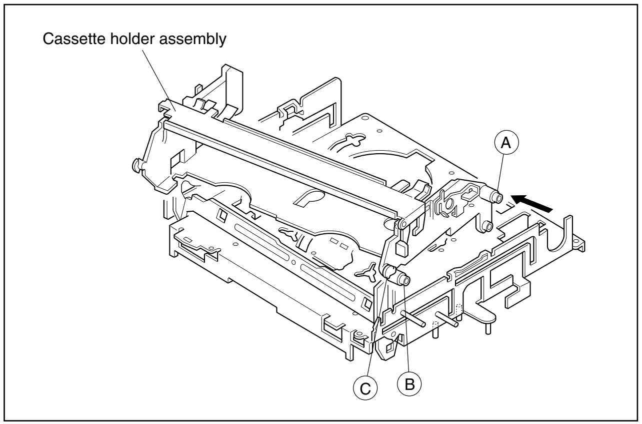

Cassette holder assembly
A
C
B

Fig. 2-2-3e

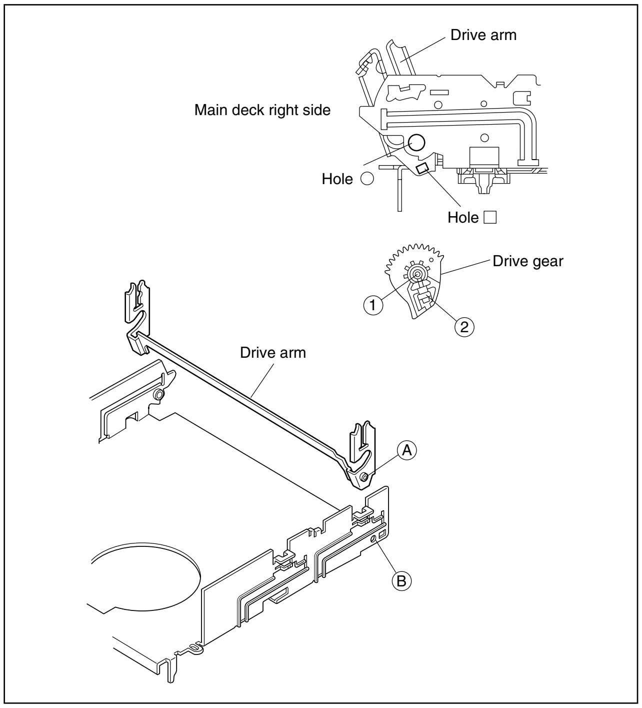

Drive arm
Main deck right side
Hole ○
Hole □
Drive gear
1
2
Drive arm
A
B

Fig. 2-2-3f

2. How to install (Phase matching)

(1) Insert the section Ⓐ of the drive arm into the section Ⓑ of the main deck.

(2) Insert the section ① of the drive gear into the round hole, and the section ② into the square hole on the drive arm. (See Fig.2-2-3f.)

(3) Hold the drive arm upright and fit the leg Ⓒ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-3g.)

(4) While swinging the lock lever (R) of the cassette holder assembly toward the front, put the legs Ⓐ and Ⓑ into the rail. (See Fig.2-2-3g.)

(5) Drop the three legs on the left side of the cassette holder assembly into the groove at one time. (See Fig.2-2-3h.)

(6) Slide the whole cassette holder assembly toward the front to bring it to the eject end position.

(7) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the guide hole on the main deck. (See Fig.2-2-3i.)

(8) Install so that the notch on the periphery of the relay gear is aligned with the notch of the main deck and that hole A of the relay gear is aligned with the hole A of the limit gear and that hole B of the relay gear is aligned with the hole B of the drive gear. (See Fig.2-2-3i.)

(9) Install the door opener, opener guide, spring(A) and cassette housing bracket and fasten the two slit washers.

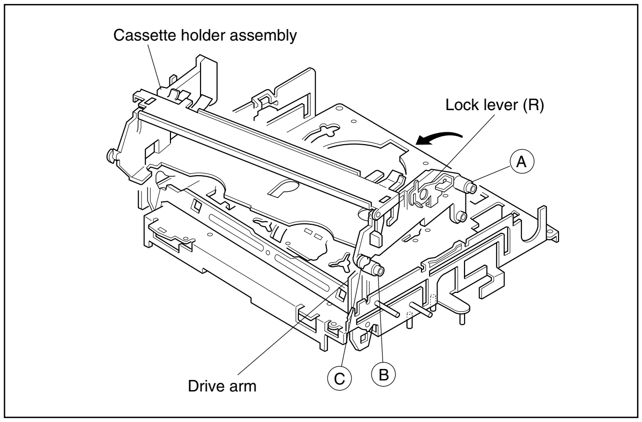

Cassette holder assembly
Lock lever (R)
A
Drive arm
C
B

Fig. 2-2-3g

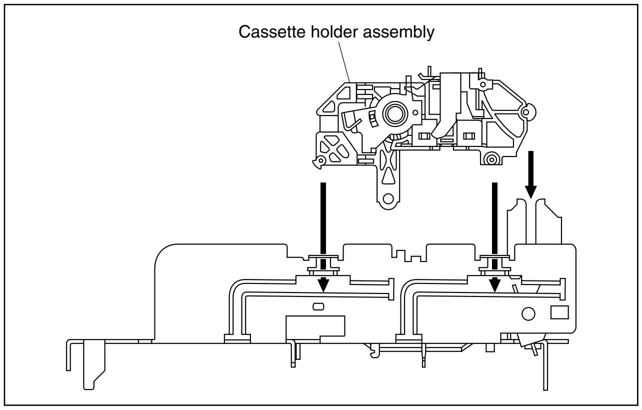

Cassette holder assembly

Fig. 2-2-3h

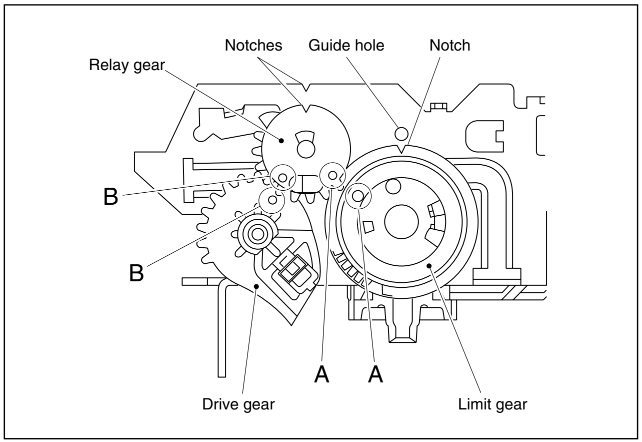

Notches
Guide hole
Notch
Relay gear
B
B
A
A
Drive gear
Limit gear

Fig. 2-2-3i

2.2.4 Pinch Roller Arm Assembly

1. How to remove

(1) Remove the spring from the hook of the press lever assembly.

(2) Remove the slit washer and remove the pinch roller seat 2. (See Fig.2-2-4a.)

(3) Remove the pinch roller arm assembly by pulling it up.

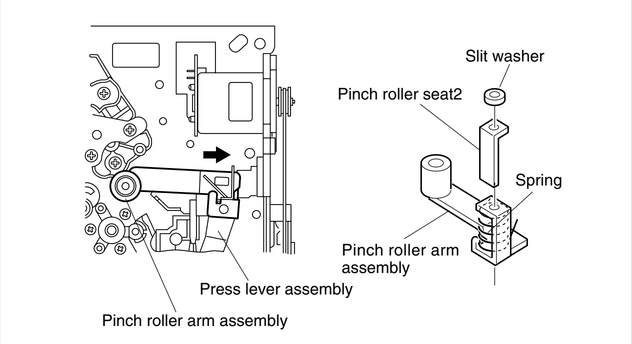

Slit washer
Pinch roller seat2
Spring
Pinch roller arm
assembly
Press lever assembly
Pinch roller arm assembly

Fig. 2-2-4a

2.2.5 Guide Arm Assembly and Press Lever Assembly

1. How to remove

(1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm assembly by pulling it up.

(2) Remove the press lever assembly by pulling it up. (See Fig.2-2-5a.)

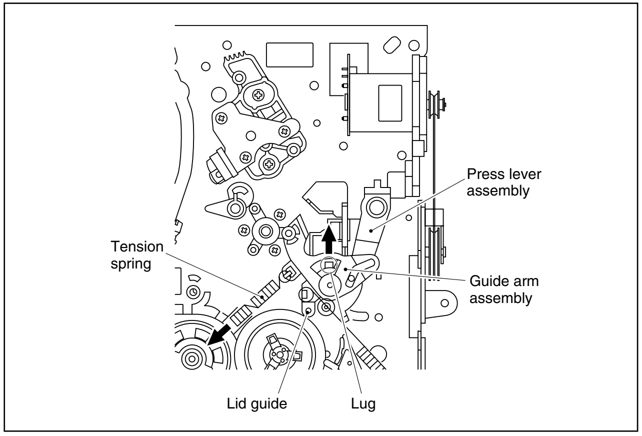

Press lever
assembly
Tension
spring
Guide arm
assembly
Lid guide
Lug

Fig. 2-2-5a

2.2.6 Audio Control Head

1. How to remove

(1) Remove the two screws (A) and remove the audio control head together with the head base.

(2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

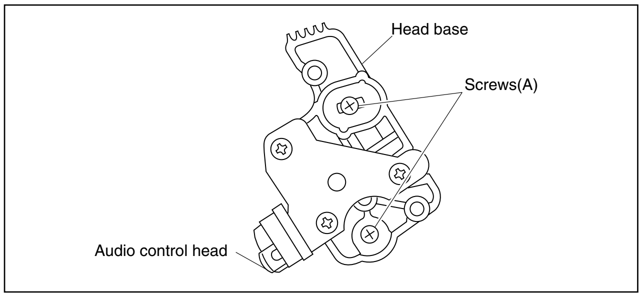

Head base
Screws(A)
Audio control head

Fig. 2-2-6a

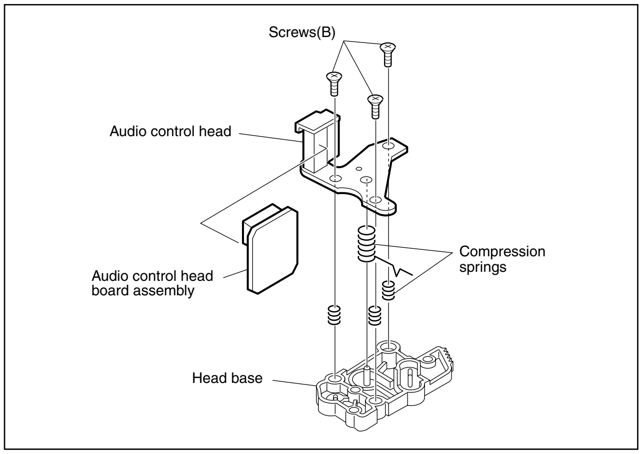

Screws(B)
Audio control head
Compression
springs
Audio control head
board assembly
Head base

Fig. 2-2-6b

2. How to install

(1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-6c. Also make sure that the screw center (centre) is brought into alignment with the center (centre) position of the slot.

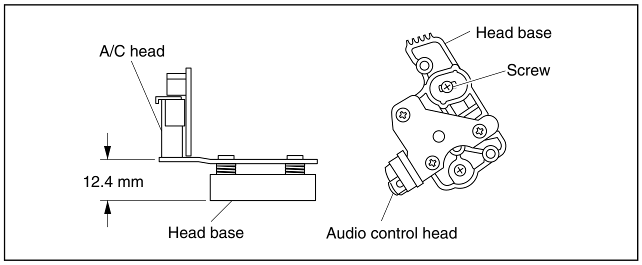

A/C head
12.4 mm
Head base
Head base
Screw
Audio control head

Fig. 2-2-6c

2.2.7 Loading Motor

1. How to remove

(1) Remove the belt wound around the worm gear.

(2) Open the two lugs of the motor guide and remove the loading motor, loading motor board assembly and motor guide altogether by pulling them up.

(3) When replacing the loading motor board assembly, take care with the orientation of the loading motor. (Install so that the loading motor label faces upward.)

(4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-7a.

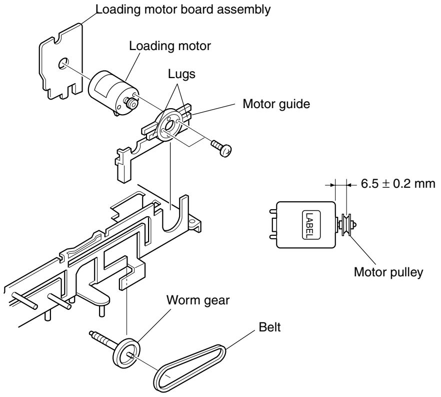


Fig. 2-2-7a

2.2.8 Capstan Motor

1. How to remove

(1) Remove the belt (capstan) on the mechanism assembly back side.

(2) Remove the three screws (A) and remove the capstan motor.

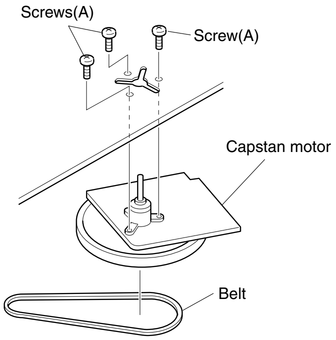


Fig. 2-2-8a

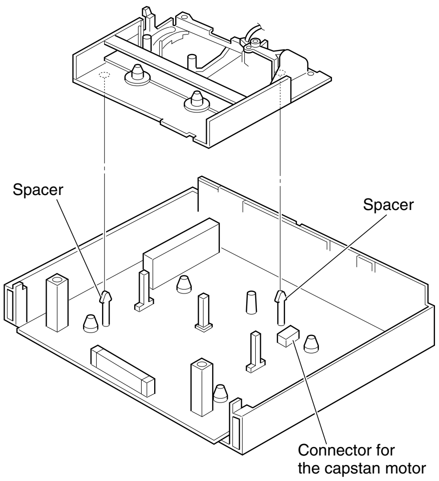


Fig. 2-2-8b

2. How to install (Centering the mounting position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.

(The capstan motor is centrally located when the unit is shipped from the factory.)

(1) Provisionally tighten the three screws (A) securing the capstan motor.

(2) Install the mechanism assembly to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism.)
Make sure that all the connectors for the mechanism assembly and the Main board assembly are correctly installed as indicated in Fig. 2-2-8b.

(3) Making sure that the connector for the capstan motor is correctly mounted, and securely tighten the three screws (A).

Note:

- ***When the capstan motor has been replaced with a new one, perform recording in the EP(or LP) mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).***

2.2.9 Pole Base Assembly (supply or take-up side)

1. How to remove

(1) Remove the UV catcher 2 on the removal side by loosening the screw (A).

(2) Remove the pole base assembly on the supply side from the mechanism assembly by loosening the screw (B) on the mechanism assembly back side and sliding the pole base assembly toward the UV catcher 2.

(3) As for the pole base assembly on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate. (See the "Procedures for Lowering the Cassette holder assembly" of 1.3 DISASSEMBLY/ASSEMBLY METHOD.) Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing the screw (B).

Note:

- ***After reinstalling the Pole base assembly and the UV catcher2, be sure to perform compatibility adjustment.***

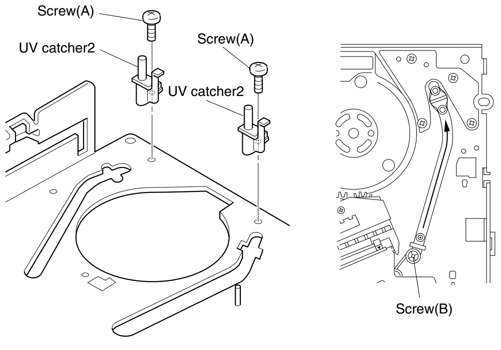


Fig. 2-2-9a

2.2.10 Rotary Encoder

1. How to remove

(1) Remove the screw (A) and remove the rotary encoder by pulling it up. (See Fig. 2-2-10a.)

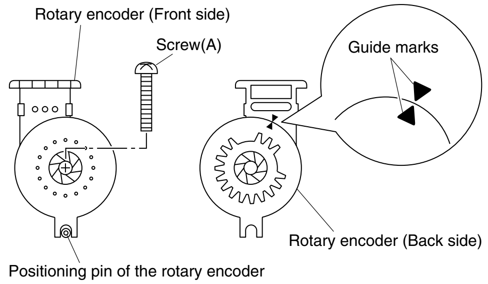

Rotary encoder (Front side)
Screw(A)
Guide marks
Rotary encoder (Back side)
Positioning pin of the rotary encoder

Fig. 2-2-10a

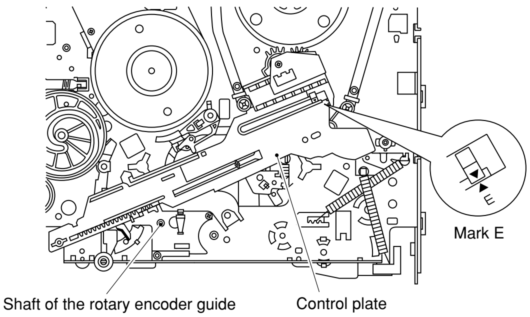

E
Mark E
Shaft of the rotary encoder guide
Control plate

Fig. 2-2-10b

2. How to install (Phase matching)

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the guide marks on the rotary encoder into alignment as indicated in Fig.2-2-10a. (See Fig. 2-2-10a and Fig. 2-2-10b.)

(2) Turn over the rotary encoder with its guide marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.

(3) Tighten the screw (A) to complete the installation.

2.2.11 Clutch Unit

(1) Remove the belt wound around the capstan motor and the clutch unit.

(2) Remove the slit washer and remove the clutch unit.

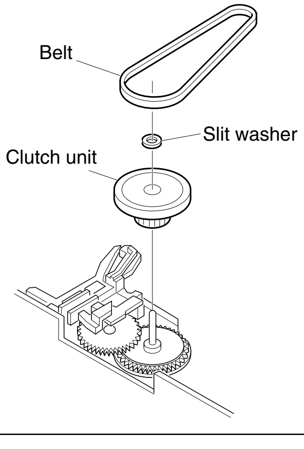

Belt
Slit washer
Clutch unit

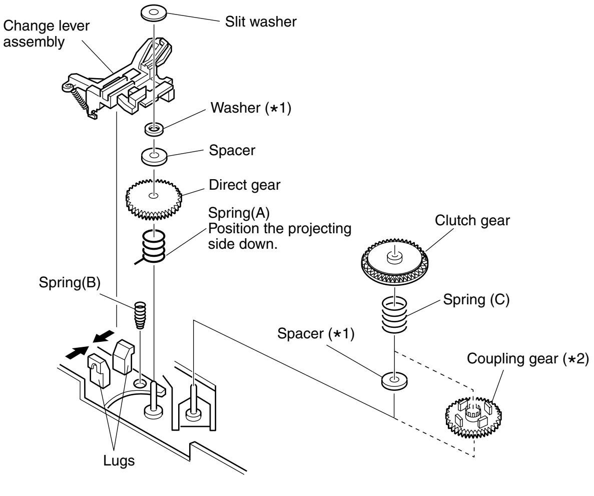
Fig. 2-2-11a

2.2.12 Change Lever Assembly, Direct Gear, Clutch Gear and Coupling Gear

1. How to remove

(1) Release the two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever assembly.

(2) Remove the slit washer retaining the direct gear and remove the latter.
Take care so as not to lose the washer and spring. (See Fig.2-2-12a.)


Change lever assembly
Slit washer
Washer (⋆1)
Spacer
Direct gear
Spring(A)
Position the projecting side down.
Clutch gear
Spring(B)
Spring (C)
Spacer (⋆1)
Coupling gear (⋆2)
Lugs

Note:
- The parts with marked (⋆) have different types of mechanisms (standard type or high-speed FF/REW type).

⋆1 : Uses the standard type mechanism only.
⋆2 : Uses the high-speed FF/REW type mechanism only.

Fig. 2-2-12a

2. How to install

(1) Install the clutch gear, spring (A), spring (C), direct gear, spacer and others to the individual shafts of the main deck, and finally the slit washer. (See Fig.2-2-12a.)

(2) Let the spring (B) drops into the rotary encoder guide hole and install the change lever assembly.(Take care not to mistake a direction of the spring.) The point is to slightly lift the clutch gear and catch it from the both sides with the assembly. (See Fig.2-2-12b.)

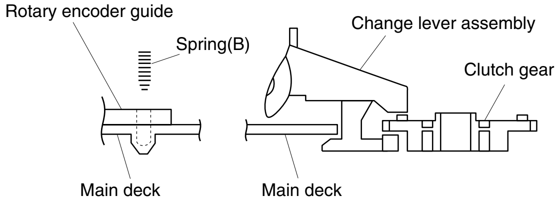

Rotary encoder guide
Spring(B)
Change lever assembly
Clutch gear
Main deck
Main deck

Fig. 2-2-12b

2.2.13 Link Lever

1. How to remove

(1) Remove the two slit washers.

(2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the locking section of the control plate.

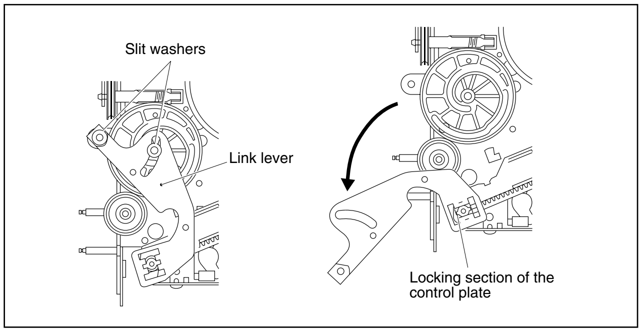

Slit washers
Link lever
Locking section of the control plate

Fig. 2-2-13a

2. How to install (Phase matching)

(1) Slide the control plate so that its mark E is aligned with the mark ▼ on the loading arm gear shaft. (See Fig.2-2-13b.)

(2) Rotate the worm gear until the guide hole of the control cam is aligned exactly with the guide hole of the main deck. (See Fig.2-2-13c.)

(3) Insert the link lever into the locking section of the control plate. (See Fig.2-2-13a.)

(4) Rotate the link lever clockwise so that it is installed on the shafts in the center (centre) and on the left of the control cam.

(5) Fasten the slit washers at these two points.

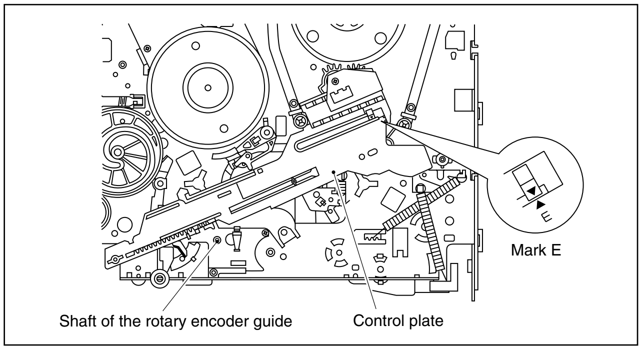

E
Mark E
Shaft of the rotary encoder guide
Control plate

Fig. 2-2-13b

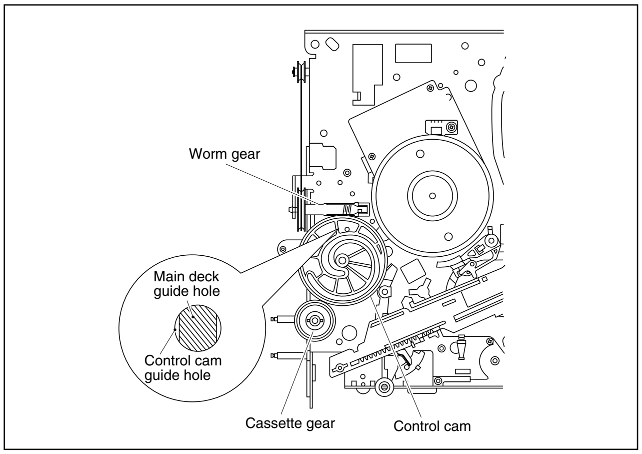

Worm gear
Main deck guide hole
Control cam guide hole
Cassette gear
Control cam

Fig. 2-2-13c

2.2.14 Cassette Gear, Control Cam and Worm Gear

1. How to remove

(1) Remove the control cam by lifting it.

(2) Open the two lugs of the cassette gear outward and pull the latter off.

(3) Remove the belt wound around the worm gear and the loading motor.

(4) Open the lug of the lid guide outward and remove the worm gear.

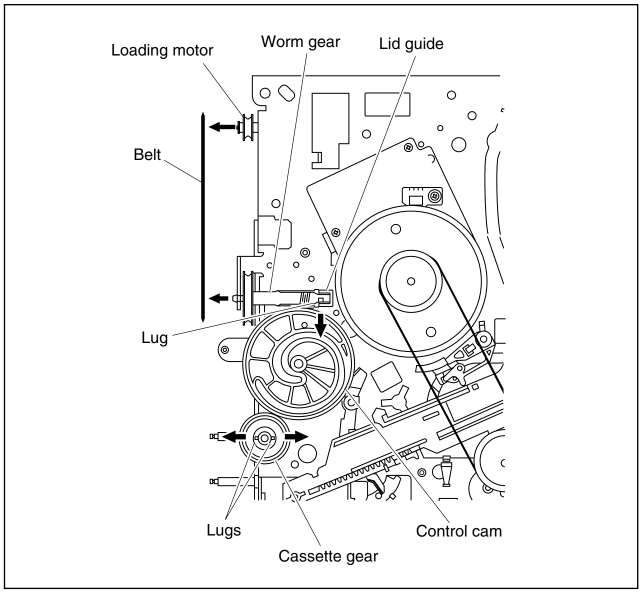

Loading motor
Worm gear
Lid guide
Belt
Lug
Lugs
Cassette gear
Control cam

Fig. 2-2-14a

2.2.15 Control Plate

1. How to remove

(1) Remove the screw (A) retaining the control bracket 1 and remove the latter.

(2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-15a.)

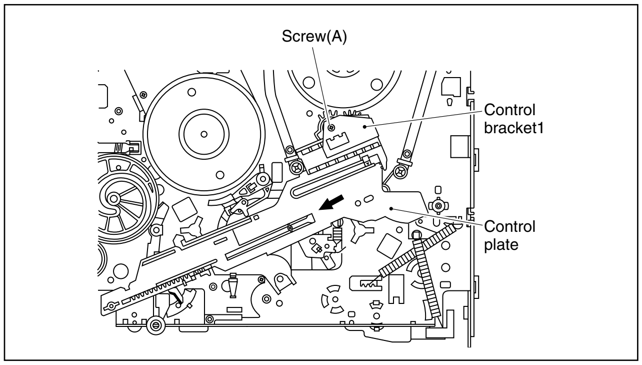

Screw(A)
Control bracket1
Control plate

Fig. 2-2-15a

2. How to install (Phase matching)

(1) Adjust the position of the idler arm assembly pin as indicated in Fig.2-2-15b (to the left of center (centre) of the R section).

(2) Bring the guide hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.

(3) Install the control plate so that the section A of the loading arm gear shaft fits into the hole (A) of the control plate, the section B of the control plate guide into the hole (B), and the control plate comes under the section C of the rotary encoder guide and the section D of the loading arm gear shaft while press-fit the pole base assmebly (supply side) as indicated by the arrow. It is important that the tension arm assembly shaft is positioned closer toward you than the control plate. (See Fig.2-2-15c.)

(4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-15c.)

(5) Pull off the hexagonal wrench for positioning.

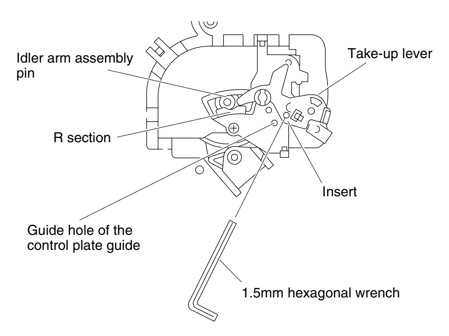

Idler arm assembly pin
Take-up lever
R section
Insert
Guide hole of the control plate guide
1.5mm hexagonal wrench

Fig. 2-2-15b

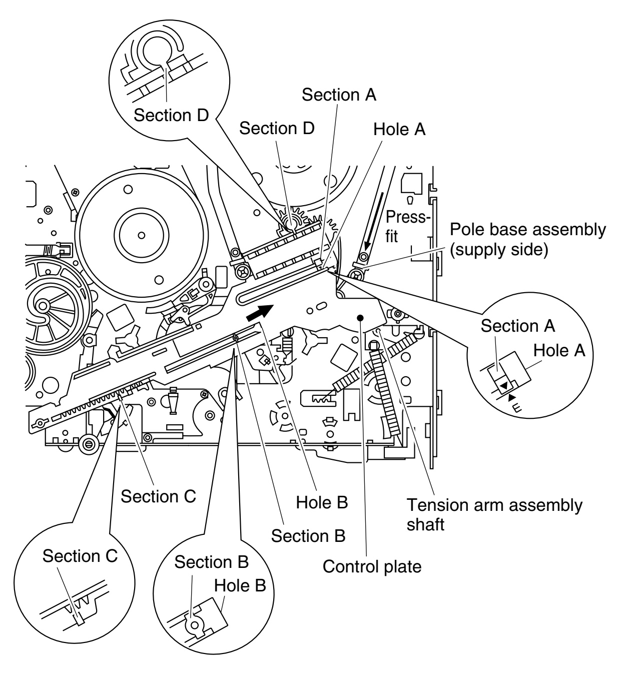

Section D
Section A
Section D
Hole A
Press-fit
Pole base assembly (supply side)
Section A
Hole A
E
Section C
Hole B
Tension arm assembly shaft
Section B
Control plate
Section C
Section B
Hole B

Fig. 2-2-15c

2.2.16 Loading Arm Gear (supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

(1) Remove the loading arm gear (supply side) by loosening the screw (A). (See Fig. 2-2-16a.)

(2) Remove the screw (B) and remove the torsion arm from the pole base assembly (take-up side). (See Fig.2-2-16a.)

(3) Turn the loading arm gear (take-up side) clockwise so that the notch of the loading arm gear (take-up side) is in alignment with the projection of the loading arm gear shaft and lift it.
Likewise, turn the loading arm counterclockwise so that the notch is in alignment with the projection and remove the loading arm gear (take-up side). (See Fig.2-2-16a and Fig. 2-2-16b.)

(4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove the screw (C) and remove the loading arm gear shaft by sliding it.

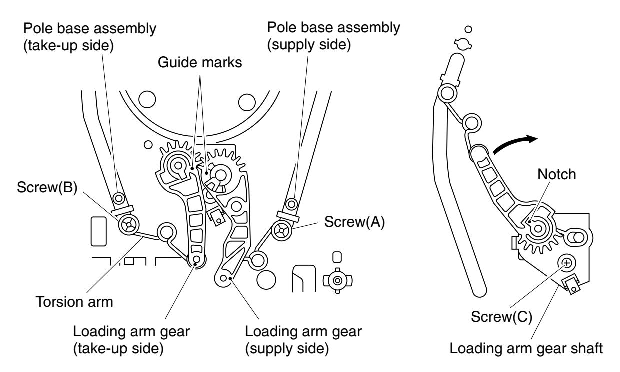

Pole base assembly (take-up side)
Pole base assembly (supply side)
Guide marks
Screw(B)
Notch
Screw(A)
Torsion arm
Loading arm gear (take-up side)
Loading arm gear (supply side)
Screw(C)
Loading arm gear shaft

Fig. 2-2-16a

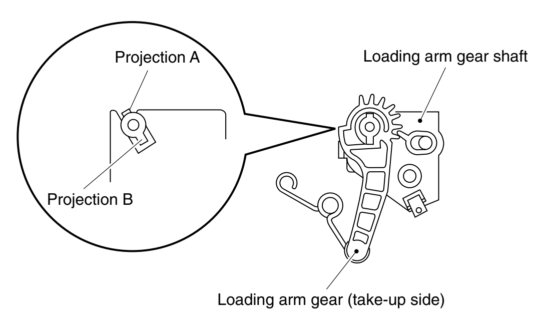

Projection A
Loading arm gear shaft
Projection B
Loading arm gear (take-up side)

Fig. 2-2-16b

2. How to install

(1) Align the notch of the loading arm gear (take-up side) to the projection B of the loading arm gear shaft and slip it over. Then rotate it clockwise for alignment with the projection A and slip it down to the bottom. (See Fig.2-2-16b.)

(2) Then turn the loading arm gear (take-up side) counterclockwise. Hang the torsion arm on the pole base assembly (take-up side) and tighten the screw (B).

(3) Install the loading arm gear (supply side) so that the guide mark of the loading arm gear (take-up side) is in alignment with the guide mark of the loading arm gear (supply side). Then hang the torsion arm on the pole base assembly (supply side) and tighten the screw (A). (See Fig.2-2-16a.)

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

(1) Remove the spring of the take-up lever from the main deck.
(2) Remove the lug (A) of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
(3) Remove the screw (A).
(4) Align the idler arm assembly pin in the center (centre) of the R section of the control plate guide, remove the control plate guide lugs (B) and (C) from the main deck, and remove the control plate guide.

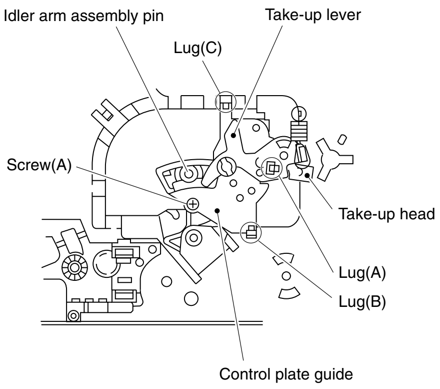

Idler arm assembly pin
Take-up lever
Lug(C)
Screw(A)
Take-up head
Lug(A)
Lug(B)
Control plate guide

Fig. 2-2-17a

2.2.18 Capstan Brake Assembly

1. How to remove

(1) Move the lug (A) of the capstan brake assembly in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-18a.)
(2) Remove the lug (B) of the capstan brake assembly from the main deck and remove the capstan brake assembly.

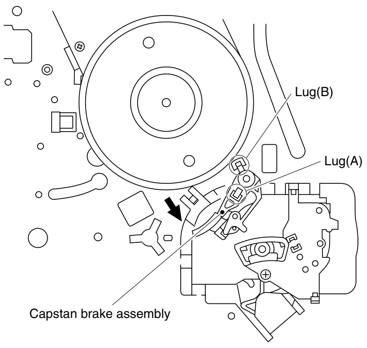

Lug(B)
Lug(A)
Capstan brake assembly

Fig. 2-2-18a

2.2.19 Sub Brake Assembly (take-up side)

1. How to remove

(1) Remove the spring attached to the lid guide and sub brake assembly (take-up side).
(2) Bring the lug (A) of the sub brake assembly (take-up side) into alignment with the notch of the main deck.
(3) Remove the lugs (B) and (C) of the sub brake assembly (take-up side) from the main deck and remove the sub brake assembly (take-up side).

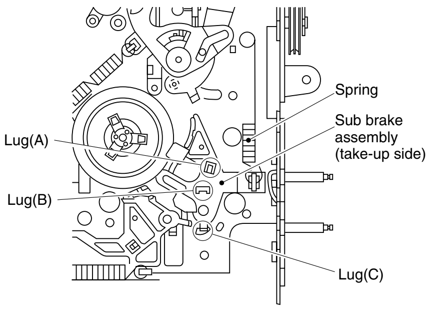

Spring
Sub brake assembly (take-up side)
Lug(A)
Lug(B)
Lug(C)

Fig. 2-2-19a

2.2.20 Main Brake Assembly (take-up side), Reel Disk (take-up side) and Main Brake Assembly (supply side)

1. How to remove

(1) Move the main brake assembly (take-up side) in the arrow-indicated direction and remove the reel disk (take-up side).
(2) Remove the spring attached to the main brake assembly.
(3) Remove the lug (A) of the main brake assembly (take-up side) and pull out the lug (B) after bringing it into alignment with the main deck notch.
(4) Remove the lugs (C), (D) and (E) of the main brake assembly (supply side) from the main deck and pull them off. (See Fig.2-2-20a.)
(5) When installing the main brake assembly (take-up side), slide the brake lever in the direction as indicated by the arrow to prevent it from hitting the projection of the main brake assembly (take-up side). (See Fig.2-2-20b.)

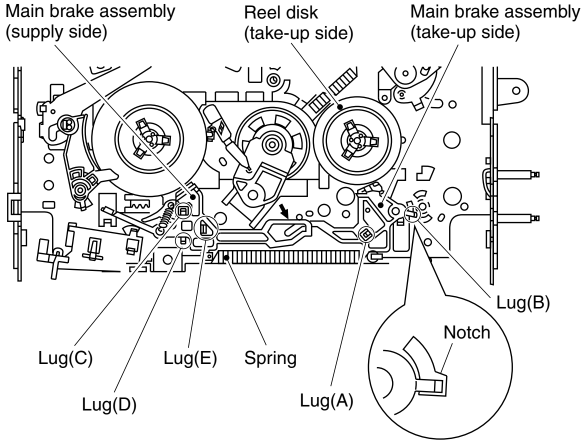
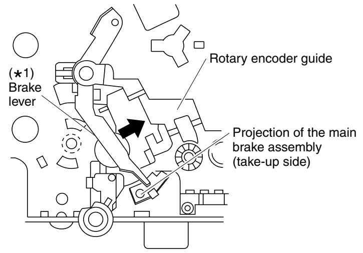

Main brake assembly (supply side)
Reel disk (take-up side)
Main brake assembly (take-up side)
Lug(B)
Notch
Lug(C)
Lug(E)
Spring
Lug(D)
Lug(A)

Fig. 2-2-20a


(⋆1) Brake lever
Rotary encoder guide
Projection of the main brake assembly (take-up side)

Note:
- *The parts with marked (⋆) have different types of mechanisms (standard type or high-speed FF/REW type).*

⋆1 : Uses the standard type mechanism only.

Fig. 2-2-20b

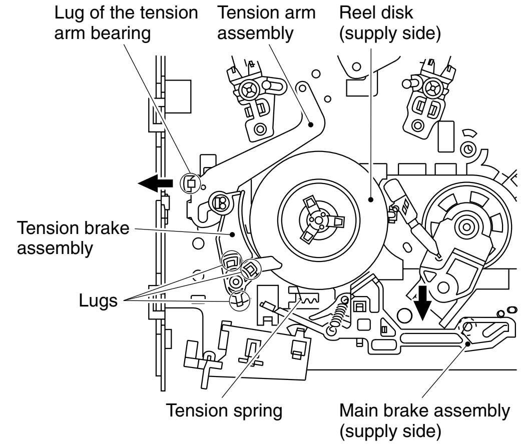
2.2.21 Tension Brake Assembly, Reel Disk (supply side) and Tension Arm Assembly

1. How to remove

(1) Remove the three lugs of the tension brake assembly from the main deck and pull them off.

(2) Remove the reel disk (supply side) by loosening in the arrow-indicated direction the main brake assembly (supply side).

(3) Remove the tension spring on the back of the main deck. Then release the lug of the tension arm bearing in the arrow-indicated direction and draw out the tension arm assembly. (See Fig. 2-2-21a.)



Lug of the tension arm bearing
Tension arm assembly
Reel disk (supply side)
Tension brake assembly
Lugs
Tension spring
Main brake assembly (supply side)

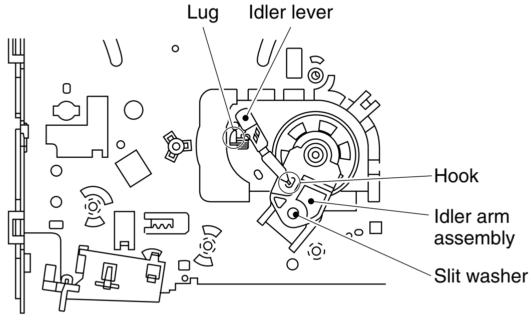
Fig. 2-2-21a

2.2.22 Idler Lever, Idler Arm Assembly

1. How to remove

(1) Remove the lug of the idler lever from the main deck and remove the hook fitted in the idler arm assembly hole by lifting it.

(2) Remove the slit washer and pull out the idler arm assembly.



Lug
Idler lever
Hook
Idler arm assembly
Slit washer

Fig. 2-2-22a

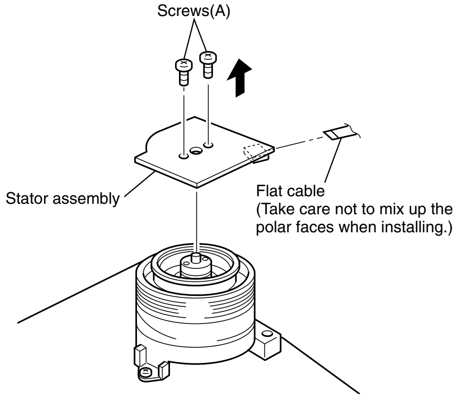
2.2.23 Stator Assembly

(1) Remove the flat cable.

(2) Remove the two screws (A).

(3) Remove the stator assembly by lifting in the arrow-indicated direction. (Take care that the brush spring does not jump out.)

(4) After installation, be sure to perform the PB switching point adjustment according to the electrical adjustment procedure.



Screws(A)
Stator assembly
Flat cable
(Take care not to mix up the polar faces when installing.)

Fig. 2-2-23a

2.2.24 Rotor Assembly

(1) Remove the stator assembly.

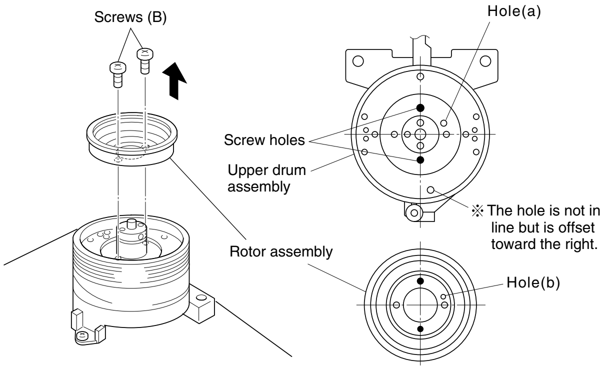
(2) Remove the two screws (B) and remove the rotor assembly.

Note:

- ***When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.***

(3) Match the phases of the upper drum assembly and the rotor assembly as indicated in Fig.2-2-24a.

(4) Place the upper drum assembly hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-24a.)



Screws (B)
Hole(a)
Screw holes
Upper drum assembly
※The hole is not in line but is offset toward the right.
Rotor assembly
Hole(b)

Fig. 2-2-24a

2.2.25 Upper Drum Assembly

1. How to remove

(1) Remove the stator assembly and rotor assembly.
(2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.
(3) Remove the upper drum assembly and remove the washer using tweezers.

Note:

- ***When replacement is required, control the up- down movement of the brush. Never apply grease.***

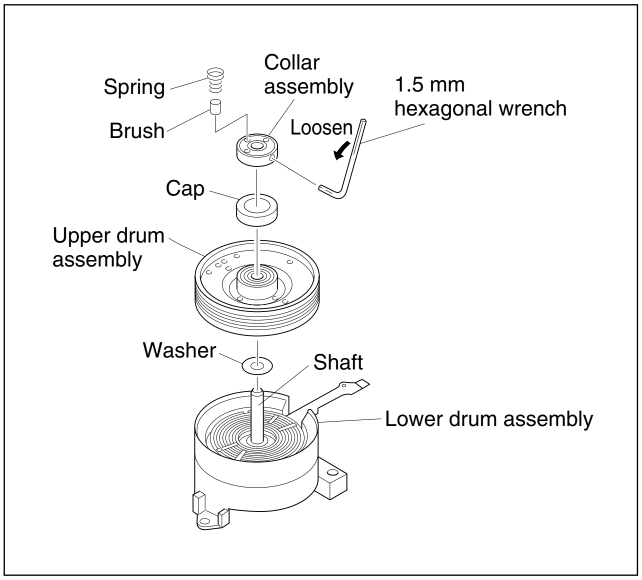

Spring
Collar assembly
1.5 mm hexagonal wrench
Brush
Loosen
Cap
Upper drum assembly
Washer
Shaft
Lower drum assembly

Fig. 2-2-25a

2. How to install

(1) Clean the coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-25b.)
(2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-25a.)

Note:

- ***When replacing the upper drum assembly, replace it the together with the washer.***

(3) Install the cap to the upper drum assembly.
(4) Position the collar assembly as indicated in Fig.2-2-25c while controlling its up- down movement.
(5) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.
(6) After installation, gently turn the upper drum assembly with your hand to make sure that it turns normally. Then install the brush and the spring.
(7) Install the rotor assembly and stator assembly according to Fig 2-2-23a and 2-2-24a.
(8) When installation is complete, clean the upper drum assembly and lower drum assembly and carry out the following adjustments.
   - PB switching point adjustment
   - Slow tracking adjustment
   - Compatibility adjustment (Be sure to check for compatibility for the EP (or LP) mode.)

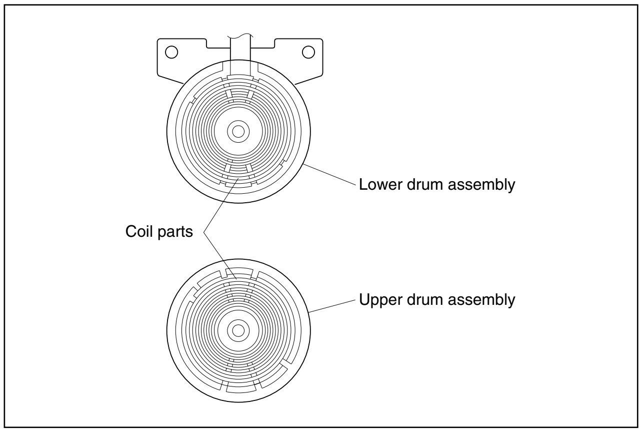

Lower drum assembly
Coil parts
Upper drum assembly

Fig. 2-2-25b

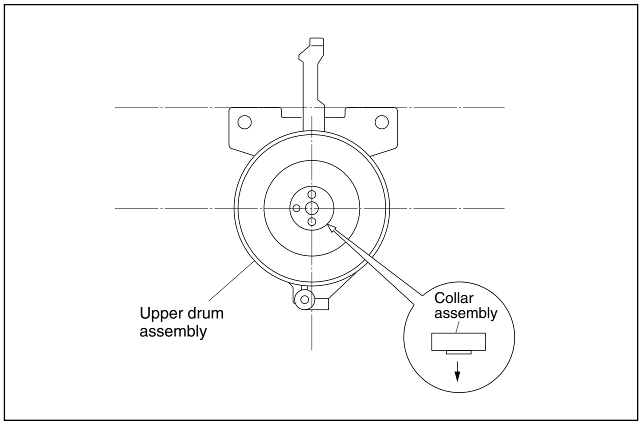

Upper drum assembly
Collar assembly

Fig. 2-2-25c

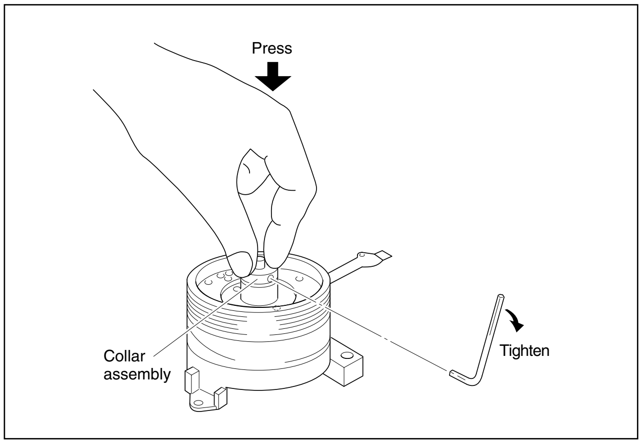

Press
Tighten
Collar assembly

Fig. 2-2-25d

2.3 COMPATIBILITY ADJUSTMENT

Notes:

- ***Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.***
- ***To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.***
- ***Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.***
- ***When using the Jig RCU, set its custom code to match the custom code of the VCR.***

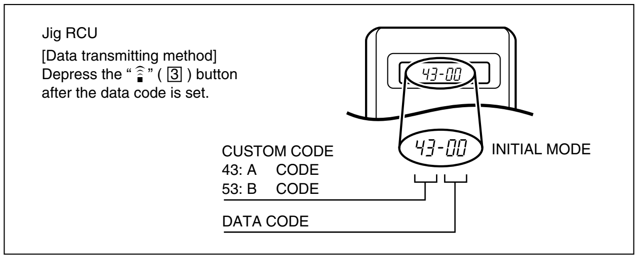

Jig RCU
[Data transmitting method]
Depress the " " (3) button
after the data code is set.
43-00
43-00
CUSTOM CODE
43: A CODE
53: B CODE
INITIAL MODE
DATA CODE

Fig. 2-3a Jig RCU [PTU94023B]

2.3.1 Checking/Adjustment of FM Waveform Linearity

Signal		[HR-J686EN]
	(A1)	• Alignment tape(SP, stairstep, PAL) [MHPE]
	(A2)	• Alignment tape(LP, stairstep, PAL) [MHPE-L]
		[HR-J686M]
	(A1)	• Alignment tape(SP, stairstep, NTSC) [MHP]
	(A2)	• Alignment tape(EP, stairstep, NTSC) [MHP-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 2-3-1a.)
(5) Reduce the V.PB FM waveform while pressing the channel buttons (+, –) during playback. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (See Fig. 2-3-1c.)
(6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
(7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
(8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 2-3-1d.)

[Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

(9) Repeat steps (1) to (8) by using the alignment tape (A2).

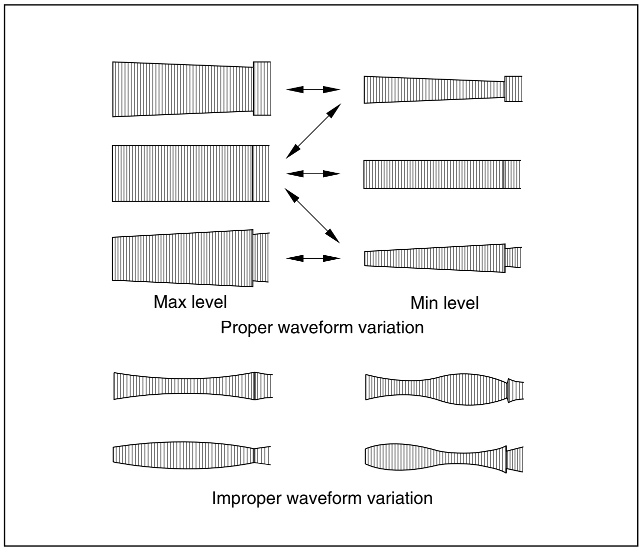


Fig. 2-3-1a

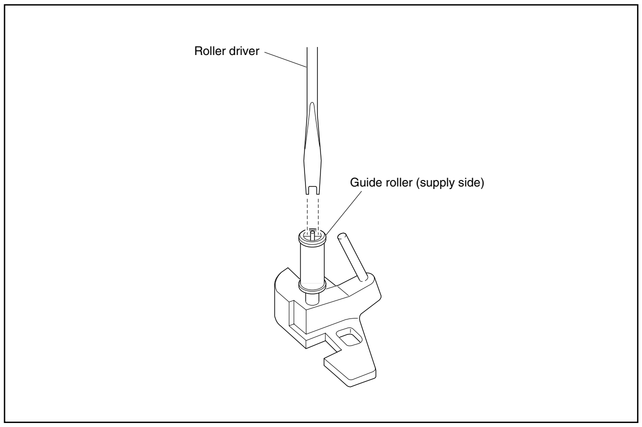


Fig. 2-3-1b

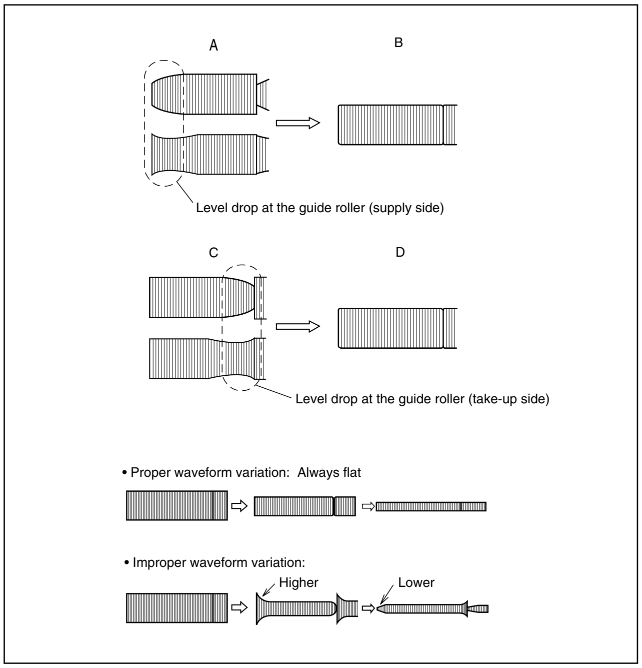

A
B
Level drop at the guide roller (supply side)
C
D
Level drop at the guide roller (take-up side)
• Proper waveform variation: Always flat
• Improper waveform variation:
Higher
Lower

Fig. 2-3-1c

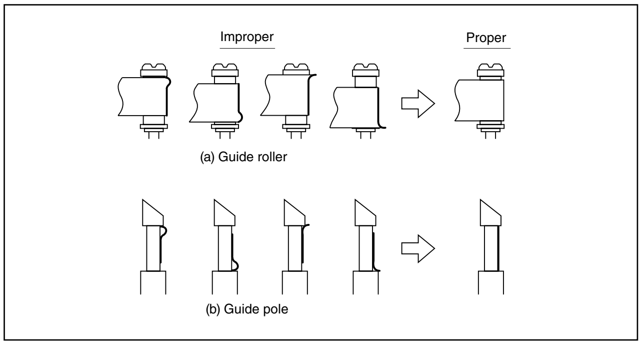

Improper
Proper
(a) Guide roller
(b) Guide pole

Fig. 2-3-1d

2.3.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note:

- ***Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See Fig.2-2-6c.)***

Signal	(A) (A)	[HR-J686EN] • Alignment tape(SP, stairstep, PAL) [MHPE] [HR-J686M] • Alignment tape(SP, stairstep, NTSC) [MHP]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL. P)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

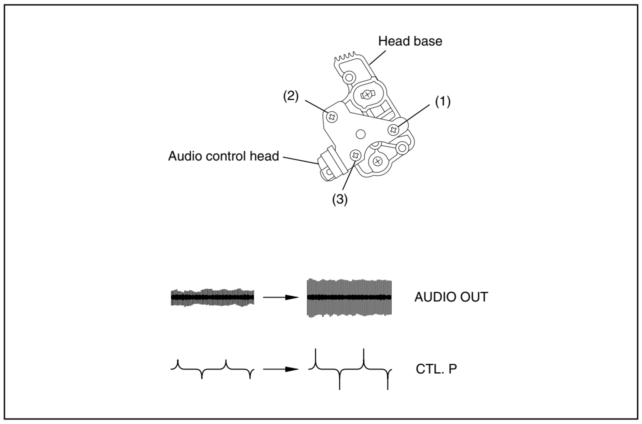

Head base
(2)
(1)
Audio control head
(3)
AUDIO OUT
CTL. P

Fig. 2-3-2a

2.3.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

Signal	(A) (A)	[HR-J686EN] • Alignment tape(SP, stairstep, PAL) [MHPE] [HR-J686M] • Alignment tape(SP, stairstep, NTSC) [MHP]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Maximum V.PB FM waveform
Adjustment tool	(H)	• A/C head positioning tool [PTU94010]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Loosen the screws (4) and (5), then set the A/C head positioning tool to the innermost projected part of the A/C head. (See Fig. 2-3-3a.)
(5) Turn the A/C head positioning tool fully toward the capstan. Then turn it back gradually toward the drum and stop on the second peak point position of the V.PB FM waveform output level. Then tighten the screws (4) and (5).
(6) Perform the tracking operation and make sure that the V.PB FM waveform is at its maximum.
If it is not at maximum, loosen the screws (4) and (5), and turn the A/C head positioning tool to bring the A/C head to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

[Perform adjustments steps (7) to (10) only for 2 Head models equipped with LP mode.]

(7) Then play back the alignment tape (A2).
(8) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(9) Perform the tracking operation and make sure that the V.PB FM waveform is at its maximum.
(10) If it is not at maximum, loosen the screws (4) and (5), and turn the A/C head positioning tool to bring the A/C head to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

Note:

- ***After adjusting, always perform the confirmation and re-adjustment of the item 2.3.4.***

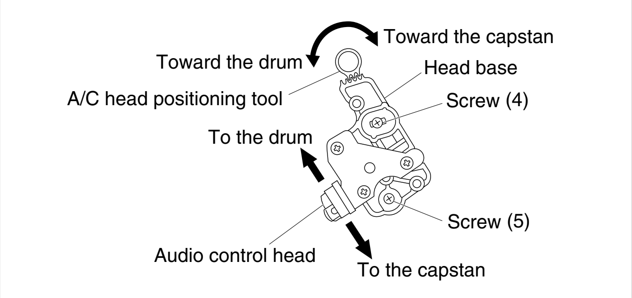


Fig. 2-3-3a

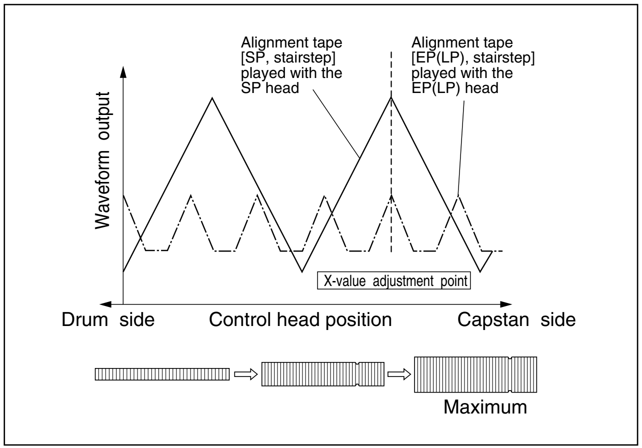


Fig. 2-3-3b

2.3.4 Checking/Adjustment of the Standard Tracking Preset

Signal	(A)	[HR-J686EN] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
	(A)	[HR-J686M] • Alignment tape(EP, stairstep, NTSC) [MHP-L]
Mode	(B)	• PB → Auto adjust
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Jig RCU: Code “50”
Specified value	(G)	• STOP mode (Maximum V.PB FM waveform)
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Confirm that the automatic tracking operation is completed.
(4) Set the VCR to the Auto adjust mode by transmitting the code (F) twice from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(5) If the VCR enters the eject mode, perform adjustment for the audio control head phase (X-value) again.

2.3.5 Checking/Adjustment of the Tension Pole Position

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B)	• PB
Adjustment part	(F)	• Adjust pin [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm (2.45 – 5 × 10^{-3} Nm]

(1) Play back the back tension cassette gauge (A).
(2) Check that the indicated value on the left side gauge is within the specified value (G).
(3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.
    1) Set the VCR to the mechanism service mode. (See 1.5 MECHANISM SERVICE MODE.)
    2) Set the VCR to the play back mode and adjust by turning adjustment pin to align the tension arm assembly edge with the main deck hole (A) on the right edge marker. (See Fig. 2-3-5a)

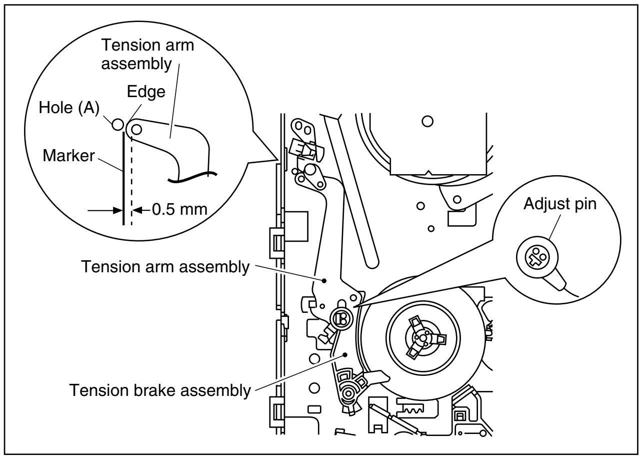
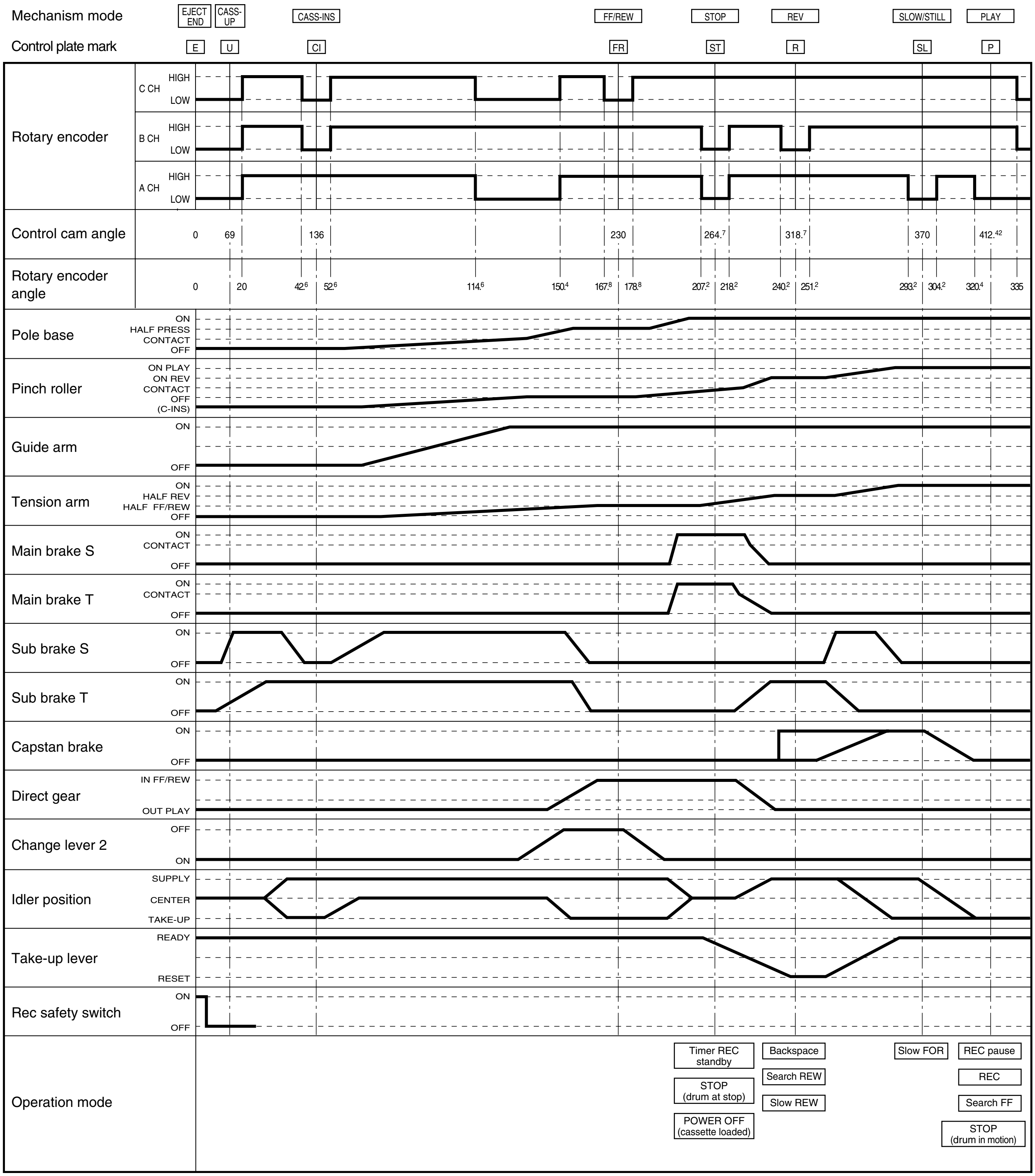


Fig. 2-3-5a

Mechanism Timing Chart


Mechanism mode
EJECT END
CASS-UP
CASS-INS
FF/REW
STOP
REV
SLOW/STILL
PLAY
Control plate mark
E
U
CI
FR
ST
R
SL
P
Rotary encoder
C CH
B CH
A CH
HIGH
LOW
Control cam angle
0
69
136
230
264.7
318.7
370
412.42
Rotary encoder angle
0
20
42.6
52.6
114.6
150.4
167.8
178.8
207.2
218.2
240.2
251.2
293.2
304.2
320.4
335
Pole base
ON
HALF PRESS
CONTACT
OFF
Pinch roller
ON PLAY
ON REV
CONTACT
OFF
(C-INS)
Guide arm
ON
OFF
Tension arm
ON
HALF REV
HALF FF/REW
OFF
Main brake S
ON
CONTACT
OFF
Main brake T
ON
CONTACT
OFF
Sub brake S
ON
OFF
Sub brake T
ON
OFF
Capstan brake
ON
OFF
Direct gear
IN FF/REW
OUT PLAY
Change lever 2
OFF
ON
Idler position
SUPPLY
CENTER
TAKE-UP
Take-up lever
READY
RESET
Rec safety switch
ON
OFF
Operation mode
Timer REC standby
STOP (drum at stop)
POWER OFF (cassette loaded)
Backspace
Search REW
Slow REW
Slow FOR
REC pause
REC
Search FF
STOP (drum in motion)

SECTION 3
ELECTRICAL ADJUSTMENT

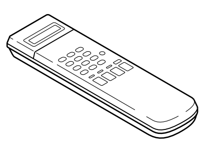
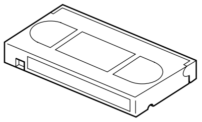
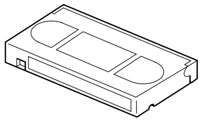
3.1 PRECAUTION

The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.
In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

3.1.1 Required test equipments

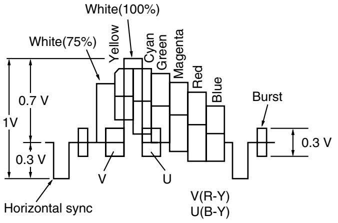
- Color (colour) television or monitor
- Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- Frequency counter
- Signal generator: RF / IF sweep / marker
- Signal generator: stairstep, color (colour) bar [PAL/NTSC]
- Recording tape
- Digit-key remote controller(provided)

3.1.2 Required adjustment tools

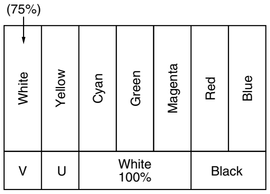
Jig RCU PTU94023B	Alignment tape (SP, stairstep, NTSC) MHP	Alignment tape (SP, stairstep, PAL) MHPE
		

3.1.3 Color (colour) bar signal,Color (colour) bar pattern

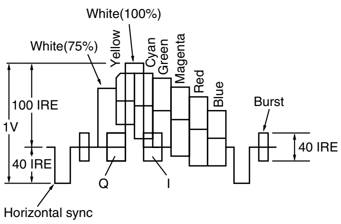
- **Colour bar signal [PAL]**


White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1V
0.3 V
0.3 V
V
U
V(R-Y)
U(B-Y)
Horizontal sync

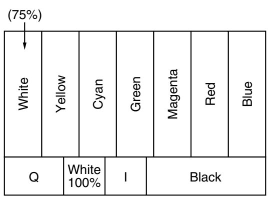
- **Colour bar pattern [PAL]**


(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
V
U
White 100%
Black

- **Color bar signal [NTSC]**


White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1V
40 IRE
40 IRE
Q
I
Horizontal sync

- **Color bar pattern [NTSC]**


(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
White 100%
I
Black

3.1.4 Switch settings and standard precautions

The SW settings of the VCR and the standard precautions for the electrical adjustments are as follows.

- ***When using the Jig RCU, set its custom code to match the custom code of the VCR.***

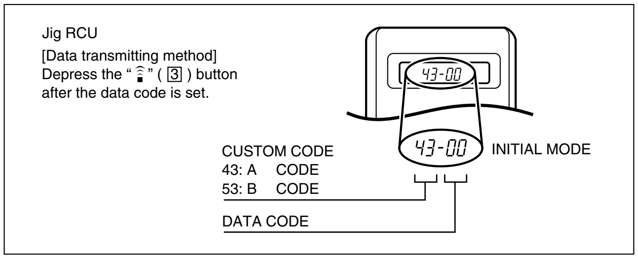

Jig RCU
[Data transmitting method]
Depress the " ⌂ " (3) button
after the data code is set.
43-00
43-00
INITIAL MODE
CUSTOM CODE
43: A CODE
53: B CODE
DATA CODE

Fig. 3-1-4a Jig RCU [PTU94023B]

- ***Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired.***
  If the VCR is not equipped with the functions detailed below, setup is not required.

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF
TBC	ON
Digital 3R	ON
VIDEO NAVIGATION/TAPE MANAGER	OFF

- ***Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.***
- ***In the Signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input" means the composite video signal input.***

3.1.5 EVR Adjustment

Some of the electrical adjustments require the adjustment performed by the EVR system. The Main board assembly have EEPROMs for storing the EVR adjustment data and user setups.

Notes:

- ***In the EVR adjustment mode, the value is varied with the channel buttons (+, –). The adjusted data is stored when the setting mode changes (from PB to STOP, when the tape speed is changed, etc.). Take care to identify the current mode of each adjustment item when making an adjustment.***
- ***When changing the address setting in the EVR adjustment mode, use the Jig RCU or the remote controller having numeric keypad with which a numeric code can be directly input.***
  The remote control code of the Jig RCU corresponds to each of the digit keys on the remote controller as follows.

Digit-key	0	1	2	3	4	5	6	7	8	9
Code	20	21	22	23	24	25	26	27	28	29

- ***As the counter indication and remaining tape indication are not displayed FDP during the EVR adjustment mode, check them on the TV monitor screen.***
- ***When performing the EVR adjustment, confirm that the FDP indication is changed to the EVR mode, as shown below.***

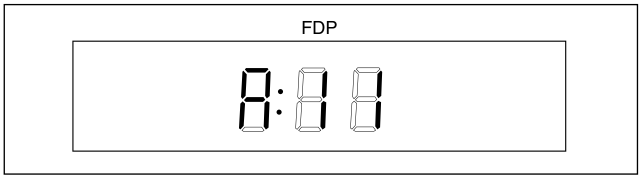


Fig. 3-1-5a EVR mode

3.2 SERVO CIRCUIT

3.2.1 Switching point

Signal	(A1)	• Stairstep signal
	(A2)	[HR-J686EN] • Alignment tape (SP, stairstep, PAL) [MHPE]
	(A2)	[HR-J686M] • Alignment tape (SP, stairstep, NTSC) [MHP]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• VIDEO OUT terminal (75Ω terminated) • TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)/slope : –
Adjustment part	(F)	• Jig RCU: Code “5A”
Specified value	(G)	• 6.5 ± 0.5H
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the signal (A1) of the alignment tape (A2).
(2) Apply the external trigger signal to D.FF (E) to observe the VIDEO OUT waveform and V.PB FM waveform at the measuring points (D1) and (D2).
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Adjust tracking by pressing the channel buttons (+, –) so that the V.PB FM waveform becomes maximum.
(5) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(6) If the VCR enters the eject mode, repeat steps (1) to (5) again.
(7) Play back the alignment tape (A2) again, confirm that the switching point is the specified value (G).

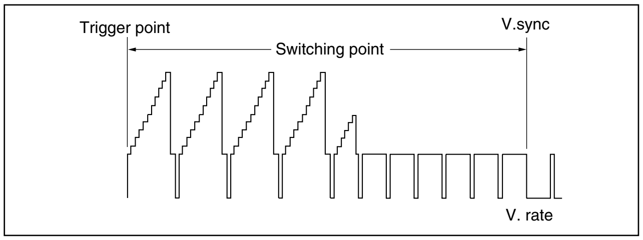


Fig. 3-2-1a Switching point

3.2.2 Slow tracking preset

Signal	(A1)	• Ext. input
	(A2) (A3)	[HR-J686EN] • Color (colour) bar signal [PAL] • Color (colour) bar signal [NTSC]
	(A2)	[HR-J686M] • Color (colour) bar signal [NTSC]
Mode	(B1)	• VHS SP
	(B2)	[HR-J686EN] • VHS LP/EP
	(B2)	[HR-J686M] • VHS EP
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code “71” or “72”
Specified value	(G)	• Minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Record the signal (A2) in the mode (B1), and play back the recorded signal.
(2) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(3) Set the VCR to the FWD slow (+1/6x) mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow (–1/6x) mode.
(8) Repeat steps (1) to (7) in the mode (B2).
(9) Repeat steps (1) to (8) with the signal (A3).

Note:

- ***For FWD slow (+1/6x) playback, transmit the code “08” from the Jig RCU to enter the slow playback mode, and transmit the code “D0” for REV slow (–1/6x) mode.***

3.3 VIDEO CIRCUIT

3.3.1 AUTO PICTURE initial setting

Signal	(A1) (A2) (A3)	• Ext. input • Video: Optional • VHS tape
Mode	(B)	• EE → Auto adjust (SP/LP REC → PB)
Adjustment part	(F)	• Jig RCU : Code “58”
Specified value	(G)	• STOP mode
Adjustment tool	(H)	• Jig RCU

(1) Insert the cassette tape (A3).
(2) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed. When the VCR enters the eject mode, repeat steps (1) to (2) again.

3.4 DEMODULATOR CIRCUIT

[Perform the DEMOD CIRCUIT adjustments only for the models equipped with IC6501 on the Main board.]

Note:

- ***Unless otherwise specified,set an audio multiplex TV signal generator as follows;***
  RF signal : 70 dBμ / 75Ω, color bar 87.5% modulation.

3.4.1 Input level

Signal	(A)	• RF signal (Audio: mono 300 Hz)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Audio level meter
Measuring point	(D)	• IC6501 pin 26
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code “57” • A : 20 (Press remote controller “2” and “0” keys.)
Specified value	(G)	• 500 ± 10 mVrms
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to mono 300 Hz.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU for more than 2 seconds.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point (D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.4.2 Stereo VCO

Signal	(A)	• No signal
Mode	(B)	• Tuner • EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2)	• IC6501 pin 26 • C6505(–) terminal
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code “57” • A : 21 (Press remote controller “2” and “1” keys.)
Specified value	(G)	• 15.73 ± 0.1 kHz
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Connect the short wire between the short point (D2) and the GND (Ground).
(2) Connect the equipment (C) to the measuring point (D1).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU for more than 2 seconds.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the frequency of the measuring point (D1) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(7) Disconnect the short wire between the short point (D2) and the GND (Ground).

3.4.3 Stereo filter

Signal	(A)	• RF signal (Audio: No signal)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• IC6501 pin 26
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code “57” • A : 22 (Press remote controller “2” key twice.)
Specified value	(G)	• Minimum level
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to no signal.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU for more than 2 seconds.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point (D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.4.4 Separation - 1

Signal	(A)	• RF signal (Audio: L-ch 300 Hz 14% modulated)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Audio level meter
Measuring point	(D)	• IC6501 pin 26
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code “57” • A : 23 (Press remote controller “2” and “3” keys.)
Specified value	(G)	• Minimum level
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to alternate L-ch 300 Hz 14% modulated.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU for more than 2 seconds.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point (D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.4.5 Separation - 2

Signal	(A)	• RF signal (Audio: L-ch 5 kHz 14% modulated)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Audio level meter
Measuring point	(D)	• IC6501 pin 26
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code “57” • A : 24 (Press remote controller “2” and “4” keys.)
Specified value	(G)	• Minimum level
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to alternate L-ch 5 kHz 14% modulated.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU for more than 2 seconds.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point(D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.4.6 SAP VCO

Signal	(A)	• No. signal
Mode	(B)	• Tuner • EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2)	• IC6501 pin 26 • C6505 (–) terminal
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code “57” • A : 25 (Press remote controller “2” and “5” keys.)
Specified value	(G)	• 78.67 ± 0.5 kHz
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Connect the short wire between the short point (D2) and the GND (Ground).
(2) Connect the equipment (C) to the measuring point (D1).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU for more than 2 seconds.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the frequency of the measuring point (D1) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(7) Disconnect the short wire between the short point (D2) and the GND (Ground).

3.5 SYSCON CIRCUIT

Note:

- ***When perform this adjustment, remove the Mechanism assembly.***

3.5.1 Timer clock

Signal	(A)	• No signal
Mode	(B)	• EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2) (D3)	• IC3001 pin29 • IC3001 pin57 • C3015 + and –
Adjustment part	(F)	• C3018 (TIMER CLOCK)
Specified value	(G)	• 1024.008 ± 0.001 Hz (976.554 ± 0.001 µsec)

(1) Connect the frequency counter to the measuring point (D1).
(2) Connect the short wire between the short point (D2) and GND.
(3) Short the leads of capacitor (D3) once in order to reset the microprocessor of the SYSCON.
(4) Adjust the Adjustment part (F) so that the output frequency becomes the specified value (G).

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

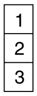
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values are in µH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

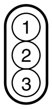
AUX : Active at high

$\overline{\text{AUX}}$ or AUX(L) : Active at low

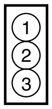
3. Interpreting Connector indications



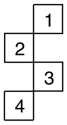
Removable connector



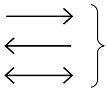
Wire soldered directly on board



Non-removable Board connector



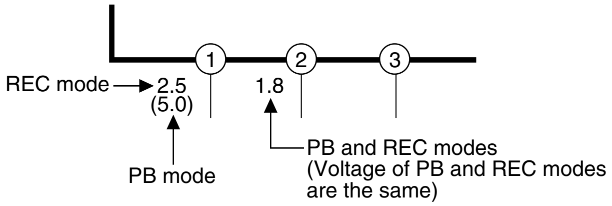
Board to Board



Connected pattern on board
The arrows indicate signal path

4. Voltage measurement

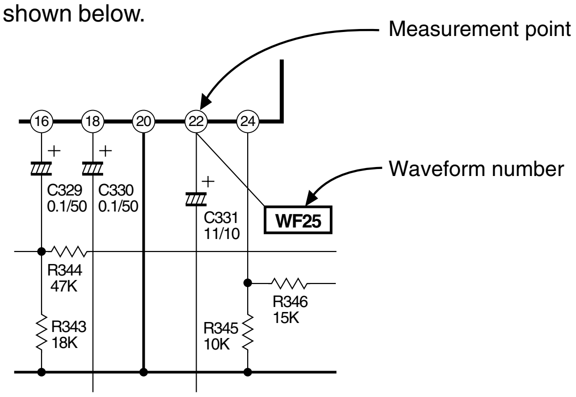
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

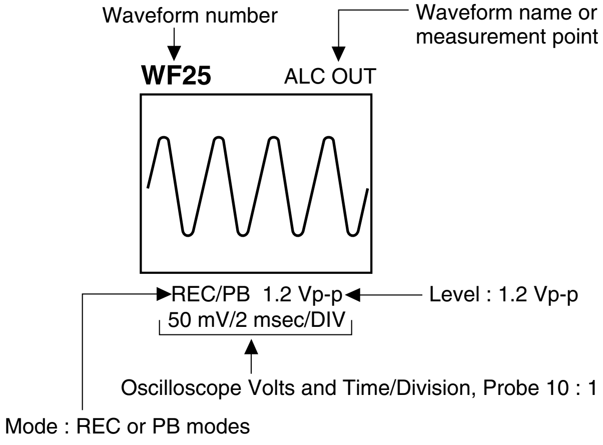
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
16
18
20
22
24
Waveform number
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
R344
47K
R346
15K
R343
18K
R345
10K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

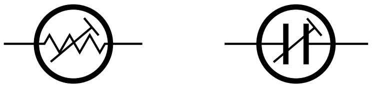
⇨	Playback signal path
⇨▶	Playback and recording signal path
➡	Recording signal path (including E-E signal path)
⇨▷	Capstan servo path
➡▶	Drum servo path

(Example)

⇨ R-Y	Playback R-Y signal path
➡ Y	Recording Y signal path

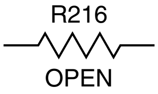
7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

“OPEN” is indicated by the parts not mounted on the circuit board.



CIRCUIT BOARD NOTES

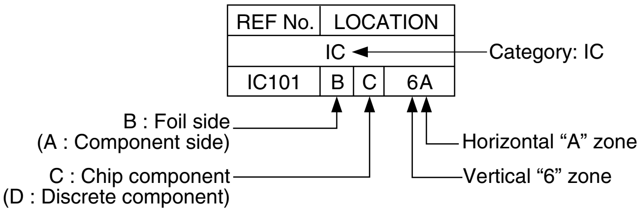
1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.

2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

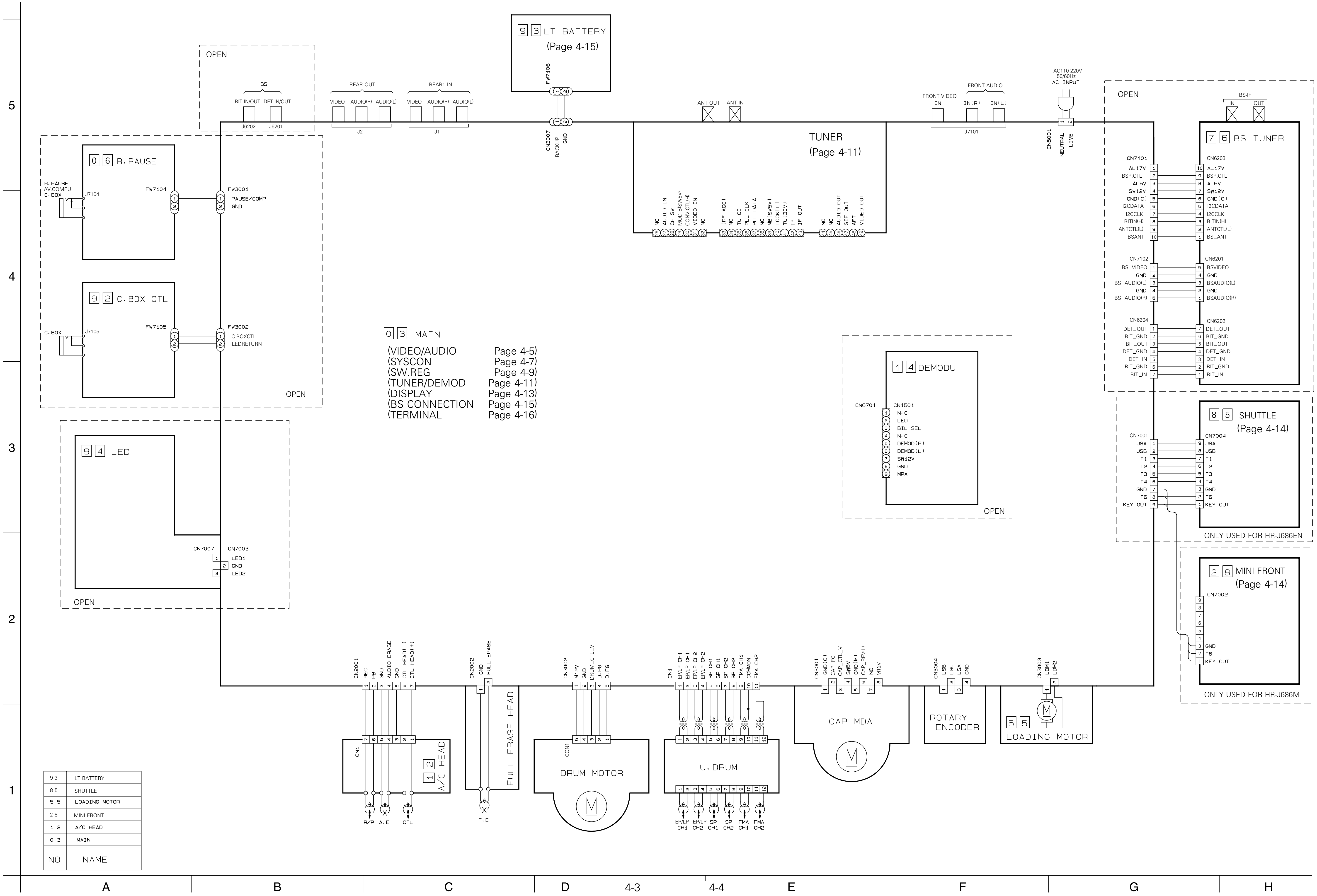
Parts location are indicated by guide scale on the circuit board.


REF No.
LOCATION
IC
Category: IC
IC101
B
C
6A
B : Foil side
(A : Component side)
C : Chip component
(D : Discrete component)
Horizontal “A” zone
Vertical “6” zone

Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

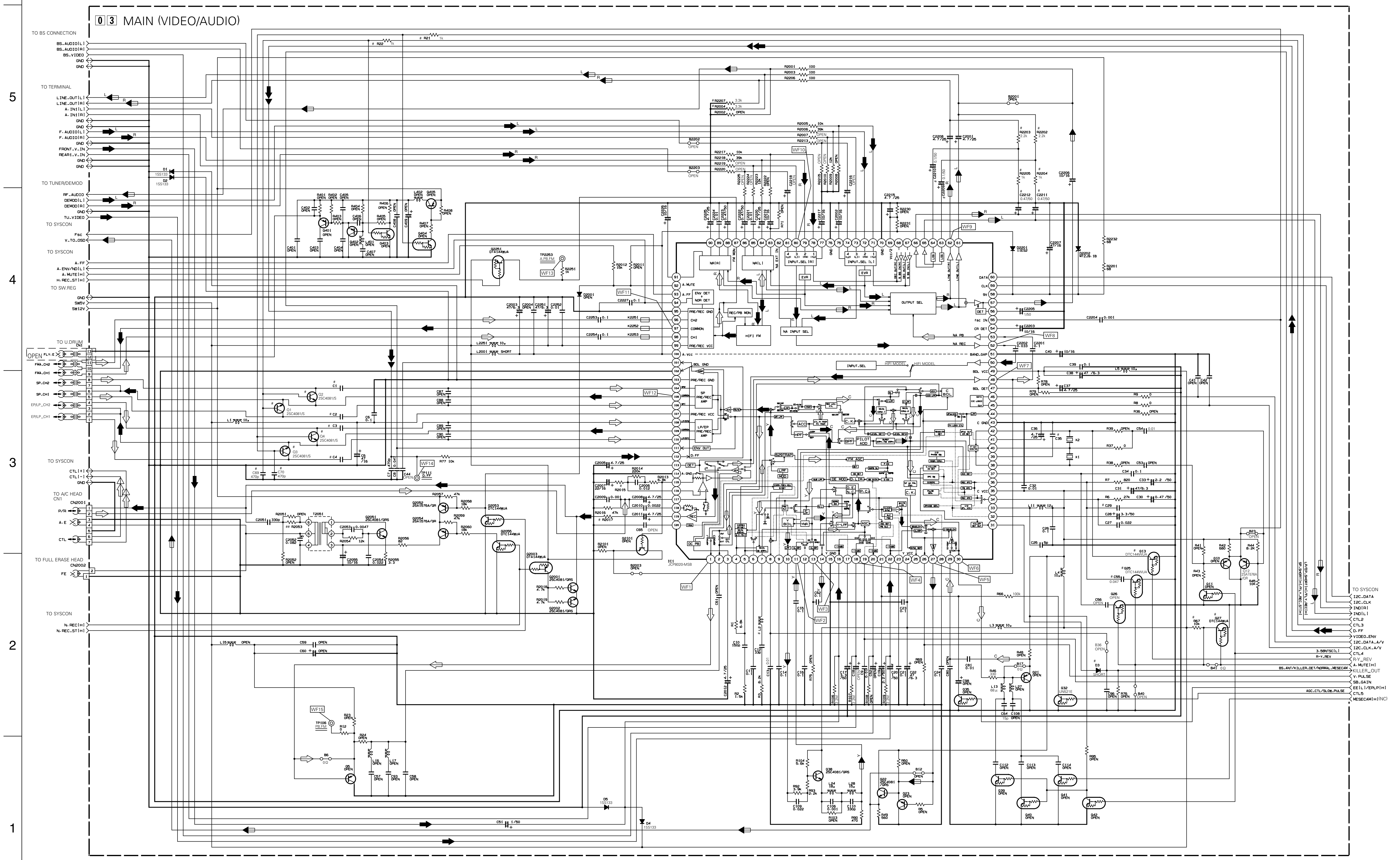
4.1 BOARD INTERCONNECTIONS


93 LT BATTERY (Page 4-15)
FW7106
CN3007 BACKUP GND
OPEN
BS
BIT IN/OUT
DET IN/OUT
J6202
J6201
REAR OUT
VIDEO AUDIO(R) AUDIO(L)
J2
REAR1 IN
VIDEO AUDIO(R) AUDIO(L)
J1
ANT OUT
ANT IN
TUNER (Page 4-11)
NC AUDIO IN CH SW MOD B(SW5V) CONV.CTL(H) VIDEO IN NC
(RF AGC) NC TU CE PLL CLK PLL DATA NC MB(SW5V) LOCK(L) TU(30V) TP IF OUT
NC NC AUDIO OUT SIF OUT AFT VIDEO OUT
FRONT VIDEO IN
FRONT AUDIO IN(R) IN(L)
J7101
AC110-220V 50/60Hz AC INPUT
CN5001 NEUTRAL LIVE
06 R.PAUSE
R.PAUSE AV.COMPU C.BOX
J7104
FW7104
FW3001 PAUSE/COMP GND
92 C.BOX CTL
C.BOX
J7105
FW7105
FW3002 C.BOXCTL LEDRETURN
94 LED
CN7007
CN7003 LED1 GND LED2
03 MAIN
(VIDEO/AUDIO Page 4-5)
(SYSCON Page 4-7)
(SW.REG Page 4-9)
(TUNER/DEMOD Page 4-11)
(DISPLAY Page 4-13)
(BS CONNECTION Page 4-15)
(TERMINAL Page 4-16)
14 DEMODU
CN6701
CN1501 N.C LED BIL SEL N.C DEMOD(R) DEMOD(L) SW12V GND MPX
BS-IF IN OUT
76 BS TUNER
CN7101 AL17V BSP.CTL AL6V SW12V GND(C) I2CDATA I2CCLK BITIN(H) ANTCTL(L) BSANT
CN6203 AL17V BSP.CTL AL6V SW12V GND(C) I2CDATA I2CCLK BITIN(H) ANTCTL(L) BS_ANT
CN7102 BS_VIDEO GND BS_AUDIO(L) GND BS_AUDIO(R)
CN6201 BSVIDEO GND BSAUDIO(L) GND BSAUDIO(R)
CN6204 DET_OUT BIT_GND BIT_OUT DET_GND DET_IN BIT_GND BIT_IN
CN6202 DET_OUT BIT_GND BIT_OUT DET_GND DET_IN BIT_GND BIT_IN
85 SHUTTLE (Page 4-14)
CN7001 JSA JSB T1 T2 T3 T4 GND T6 KEY OUT
CN7004 JSA JSB T1 T2 T3 T4 GND T6 KEY OUT
ONLY USED FOR HR-J686EN
28 MINI FRONT (Page 4-14)
CN7002 GND T6 KEY OUT
ONLY USED FOR HR-J686M
CN2001 REC PB GND AUDIO ERASE GND CTL HEAD(-) CTL HEAD(+)
CN1
12 A/C HEAD
R/P A.E CTL
CN2002 GND FULL ERASE
FULL ERASE HEAD
F.E
CN3002 M12V GND DRUM_CTL_V D.PG D.FG
CON1
DRUM MOTOR
CN1 EP/LP CH1 EP/LP CH1 EP/LP CH2 EP/LP CH2 SP CH1 SP CH1 SP CH2 SP CH2 FMA CH1 COMMON FMA CH2
U.DRUM
EP/LP CH1 EP/LP CH2 SP CH1 SP CH2 FMA CH1 FMA CH2
CN3001 GND(C) CAP_FG CAP_CTL_V SW5V GND(M) CAP_REV(L) NC M12V
CAP MDA
CN3004 LSB LSC LSA GND
ROTARY ENCODER
CN3003 LDM1 LDM2
55 LOADING MOTOR
A B C D E F G H
1 2 3 4 5

9 3	LT BATTERY
8 5	SHUTTLE
5 5	LOADING MOTOR
2 8	MINI FRONT
1 2	A/C HEAD
0 3	MAIN
NO	NAME

4.2 VIDEO/AUDIO SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

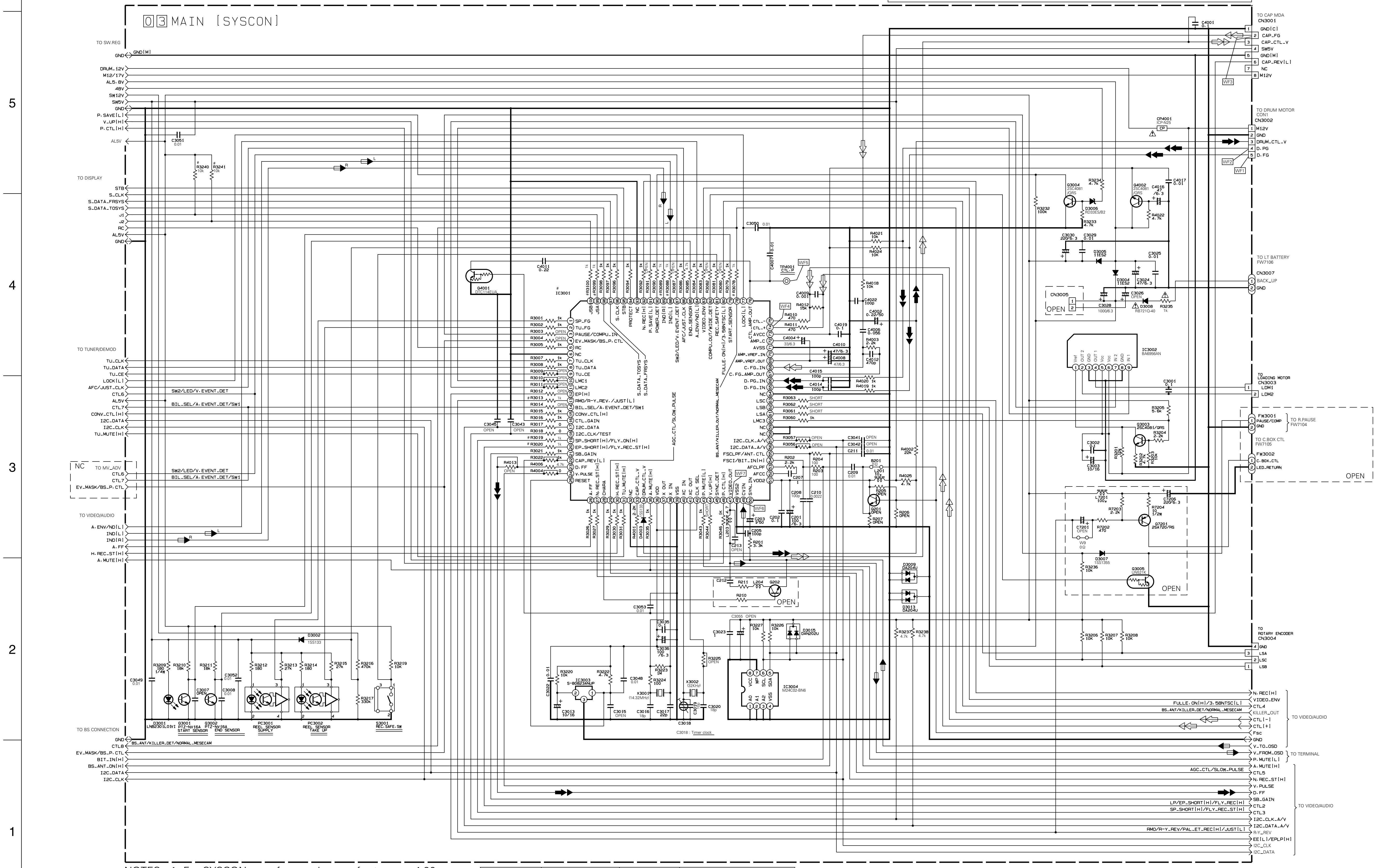

03 MAIN (VIDEO/AUDIO)
TO BS CONNECTION
BS_AUDIO(L)
BS_AUDIO(R)
BS_VIDEO
GND
TO TERMINAL
LINE_OUT(L)
LINE_OUT(R)
A_IN(L)
A_IN(R)
F_AUDIO(L)
F_AUDIO(R)
FRONT_V_IN
REAR1_V_IN
TO TUNER/DEMOD
RF_AUDIO
DEMOD(L)
DEMOD(R)
TU_VIDEO
TO SYSCON
Fsc
V_TO_OSD
A.FF
A.ENV/NDI(L)
A.MUTE(H)
H.REC_ST(H)
TO SW.REG
SW5V
SW12V
TO U.DRUM
CN1
OPEN
FLY.E
FMA_CH2
FMA_CH1
SP_CH2
SP_CH1
EP/LP_CH2
EP/LP_CH1
CTL(+)
CTL(-)
TO A/C HEAD
CN2001
P/R
A-E
CTL
TO FULL ERASE HEAD
CN2002
FE
N.REC(H)
N.REC_ST(H)
IC1
JCP8020-MSB
INPUT SEL
OUTPUT SEL
HIFI FM
NA INPUT SEL
PRE/REC AMP
LP/EP PRE/REC AMP
ENV DET
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
WF15
TO SYSCON
I2C_DATA
I2C_CLK
IND(R)
IND(L)
CTL2
CTL3
D.FF
VIDEO_ENV
I2C_DATA_A/V
I2C_CLK_A/V
CTL4
R-Y_REV
A.MUTE(H)
KILLER_OUT
V.PULSE
SB.GAIN
EE(L)/EP/LP(H)
CTL5
MESECAM(H)
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTES : 1. For VIDEO/AUDIO waveforms, please refer to page 4-20.
2. Comparison chart of models & marks(#).

	REF.NO	R21,R22	R67,R2004	R2015	R2017	R2053	R2202~R2205	R2207	C1-C4	C29	C35	C55	C69,C70,C2209-C2212	L2	Q1~Q4	Q13,Q25,Q27	D3
MODEL	HR-J686M	NOT USED	USED	180	15k	4.7k	NOT USED	USED	1	0.068	0.01	USED	NOT USED	SHORT	NOT USED	USED	USED
	HR-J686EN	USED	NOT USED	120	22k	6.8k	USED	NOT USED	0.01	0.1	0.033	NOT USED	USED	100μ	USED	NOT USED	NOT USED

4.3 SYSTEM CONTROL SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



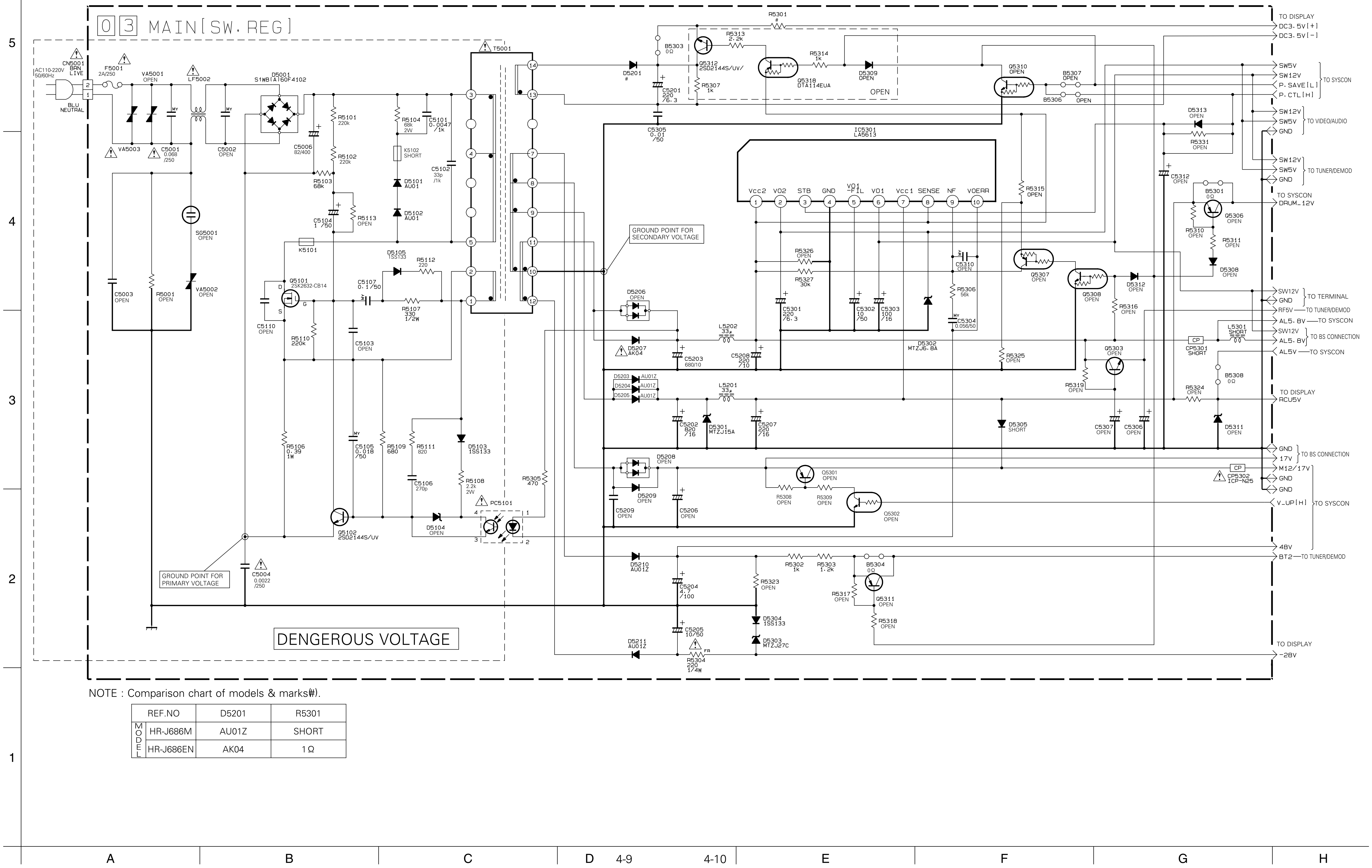
03 MAIN [SYSCON]
TO SW.REG
GND
DRUM_12V
M12/17V
AL5.8V
48V
SW12V
SW5V
GND
P.SAVE[L]
V_UP[H]
P.CTL[H]
AL5V
TO DISPLAY
STB
S_CLK
S_DATA_FRSYS
S_DATA_TOSYS
J1
J2
RC
AL5V
GND
TO TUNER/DEMOD
TU_CLK
TU_DATA
TU_CE
LOCK[L]
AFC/JUST_CLK
CTL6
AL5V
CTL7
CONV_CTL[H]
I2C_DATA
I2C_CLK
TU_MUTE[H]
NC
TO MV_ADV
CTL6
CTL7
EV_MASK/BS_P.CTL
TO VIDEO/AUDIO
A.ENV/ND[L]
IND[L]
IND[R]
A.FF
H.REC_ST[H]
A.MUTE[H]
TO BS CONNECTION
GND
CTL8
EV_MASK/BS_P.CTL
BIT_IN[H]
BS_ANT_ON[H]
I2C_DATA
I2C_CLK
IC3001
Q4001 DTC114EUA
IC3002 BA6956AN
IC3003 S-80823ANUP
IC3004 M24C02-BN6
X3001 (14.32MHz)
X3002 (32KHz)
C3018 : Timer clock
D3001 LN8230TL0.9VI
Q3001 PTZ-NV16A START SENSOR
Q3002 PTZ-NV16A END SENSOR
PC3001 REEL SENSOR SUPPLY
PC3002 REEL SENSOR TAKE UP
S3001 REC.SAFE.SW
TO CAP MDA CN3001
GND[C]
CAP_FG
CAP_CTL_V
SW5V
GND[M]
CAP_REV[L]
NC
M12V
TO DRUM MOTOR CON1 CN3002
M12V
GND
DRUM_CTL_V
D.PG
D.FG
TO LT BATTERY FW7106
CN3007
BACK_UP
GND
CN3005
OPEN
TO LOADING MOTOR CN3003
LDM1
LDM2
FW3001
PAUSE/COMP
GND
TO R.PAUSE FW7104
TO C.BOX CTL FW7105
FW3002
C.BOX_CTL
LED_RETURN
OPEN
TO ROTARY ENCODER CN3004
GND
LSA
LSC
LSB
N.REC[H]
VIDEO_ENV
CTL4
KILLER_OUT
CTL[-]
CTL[+]
Fsc
GND
TO VIDEO/AUDIO
V_TO_OSD
V_FROM_OSD
P.MUTE[L]
TO TERMINAL
A.MUTE[H]
CTL5
N.REC_ST[H]
V.PULSE
D.FF
SB_GAIN
CTL2
CTL3
I2C_CLK_A/V
I2C_DATA_A/V
R-Y_REV
EE[L]/EPLP[H]
I2C_CLK
I2C_DATA
TO VIDEO/AUDIO
FULLE.ON[H]/3.58NTSC[L]
BS_ANT/KILLER_DET/NORMAL_MESECAM
AGC_CTL/SLOW_PULSE
LP/EP_SHORT[H]/FLY_REC[H]
SP_SHORT[H]/FLY_REC_ST[H]
RMD/R-Y_REV/PAL_ET_REC[H]/JUST[L]
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTES : 1. For SYSCON waveforms, please refer to page 4-20.
2. Comparison chart of models & marks(#).

REF.NO.		IC3001	R3013,R3078	R3019,R3020,R3088,R3089 R3099,R3100,R3240,R3241
MODEL	HR-J686M	MN101D02GJK	USED	NOT USED
	HR-J686EN	MN101D02GJT	NOT USED	USED

4.4 SWITCHING REGULATOR SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



03 MAIN[SW.REG]
DENGEROUS VOLTAGE
AC110-220V 50/60Hz
CN5001 BRN LIVE
BLU NEUTRAL
F5001 2A/250
VA5001 OPEN
LF5002
D5001 S1WB(A)60F4102
VA5003
C5001 0.068 /250
C5002 OPEN
C5006 82/400
R5101 220k
R5102 220k
R5103 68k
R5104 68k 2W
C5101 0.0047 /1k
K5102 SHORT
C5102 33p /1k
D5101 AU01
D5102 AU01
C5104 1 /50
R5113 OPEN
SG5001 OPEN
K5101
D5105 1SS133
R5112 220
C5107 0.1/50
R5107 330 1/2W
Q5101 2SK2632-CB14
C5003 OPEN
R5001 OPEN
VA5002 OPEN
C5110 OPEN
R5110 220k
C5103 OPEN
R5106 0.39 1W
C5105 0.018 /50
R5109 680
R5111 820
C5106 270p
D5103 1SS133
R5108 2.2k 2W
R5305 470
PC5101
D5104 OPEN
Q5102 2SD2144S/UV
GROUND POINT FOR PRIMARY VOLTAGE
C5004 0.0022 /250
T5001
GROUND POINT FOR SECONDARY VOLTAGE
D5201 #
R5301 #
B5303 0Ω
C5201 220 /6.3
Q5312 2SD2144S/UV/
R5313 2.2k
R5307 1k
Q5318 DTA114EUA
R5314 1k
D5309 OPEN
OPEN
C5305 0.01 /50
Q5310 OPEN
B5307 OPEN
B5306 OPEN
IC5301 LA5613
Vcc2 VO2 STB GND VO1-FIL VO1 Vcc1 SENSE NF VOERR
D5313 OPEN
R5331 OPEN
C5312 OPEN
B5301 0Ω
Q5306 OPEN
R5310 OPEN
R5311 OPEN
D5308 OPEN
R5315 OPEN
R5326 OPEN
R5327 30k
C5310 OPEN
R5306 56k
C5304 0.056/50
Q5307 OPEN
Q5308 OPEN
D5312 OPEN
R5316 OPEN
D5206 OPEN
D5207 AK04
C5203 680/10
L5202 33μ
C5208 220 /10
C5301 220 /6.3
C5302 10 /50
C5303 100 /16
D5302 MTZJ6.8A
R5325 OPEN
Q5303 OPEN
R5319 OPEN
CP5301 SHORT
L5301 SHORT
B5308 0Ω
R5324 OPEN
D5203 AU01Z
D5204 AU01Z
D5205 AU01Z
L5201 33μ
C5202 820 /16
D5301 MTZJ15A
C5207 220 /16
D5305 SHORT
C5307 OPEN
C5306 OPEN
D5311 OPEN
D5208 OPEN
Q5301 OPEN
R5308 OPEN
R5309 OPEN
Q5302 OPEN
D5209 OPEN
C5209 OPEN
C5206 OPEN
CP5302 ICP-N25
D5210 AU01Z
C5204 4.7 /100
R5323 OPEN
R5302 1k
R5303 1.2k
B5304 0Ω
Q5311 OPEN
R5317 OPEN
R5318 OPEN
D5304 1SS133
D5303 MTZJ27C
C5205 10/50
R5304 220 1/4W FR
D5211 AU01Z
TO DISPLAY
DC3.5V[+]
DC3.5V[-]
SW5V
SW12V
P.SAVE[L]
P.CTL[H]
TO SYSCON
SW12V
SW5V
GND
TO VIDEO/AUDIO
SW12V
SW5V
GND
TO TUNER/DEMOD
TO SYSCON
DRUM_12V
SW12V
GND
TO TERMINAL
RF5V —TO TUNER/DEMOD
AL5.8V —TO SYSCON
SW12V
AL5.8V
TO BS CONNECTION
AL5V —TO SYSCON
TO DISPLAY
RCU5V
GND
17V
TO BS CONNECTION
M12/17V
GND
GND
V_UP[H]
TO SYSCON
48V
BT2 —TO TUNER/DEMOD
TO DISPLAY
-28V
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : Comparison chart of models & marks(#).

	REF.NO	D5201	R5301
MODEL	HR-J686M	AU01Z	SHORT
	HR-J686EN	AK04	1Ω

4.5 TUNER/DEMOD SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

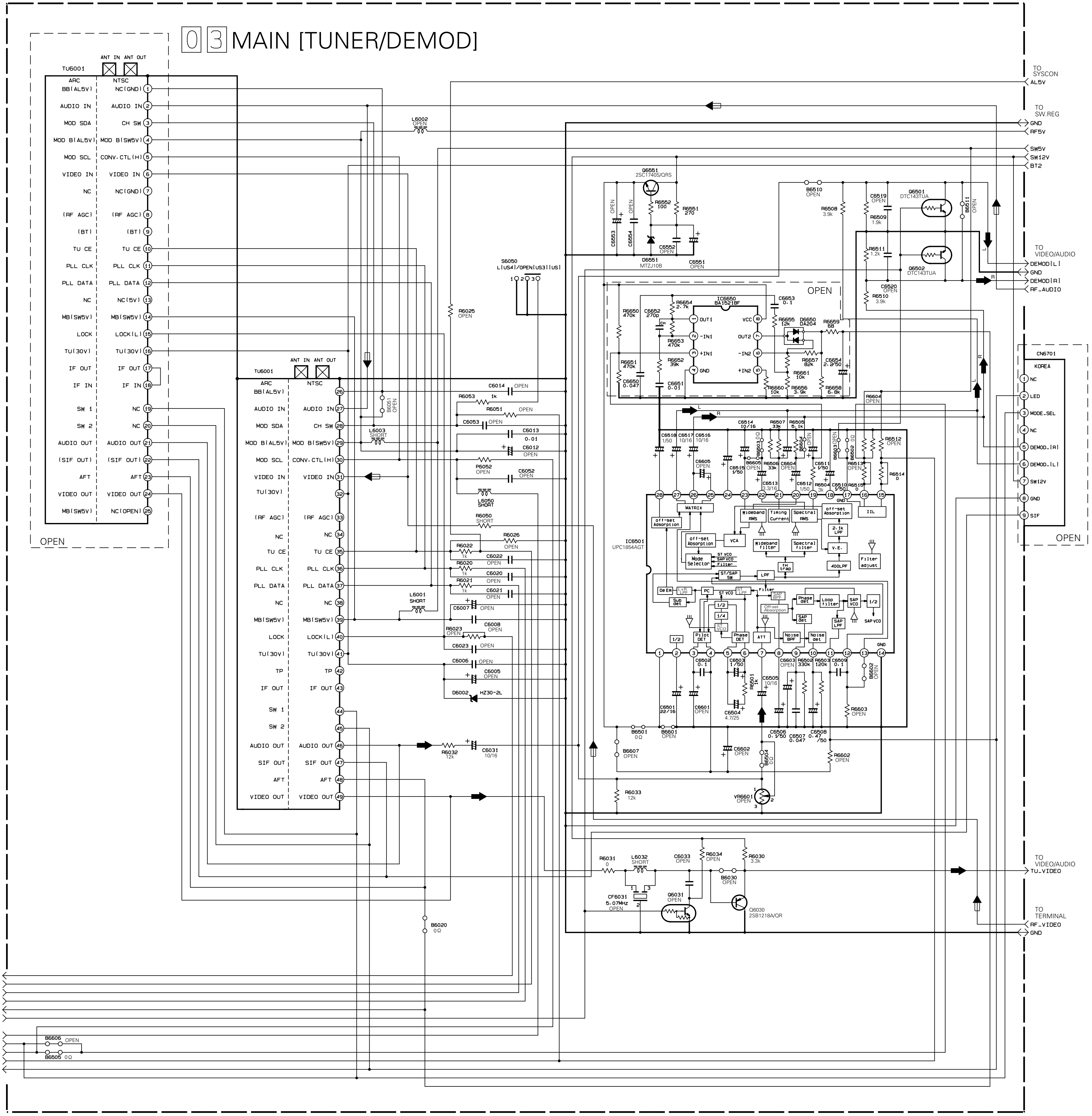
5

4

3

2

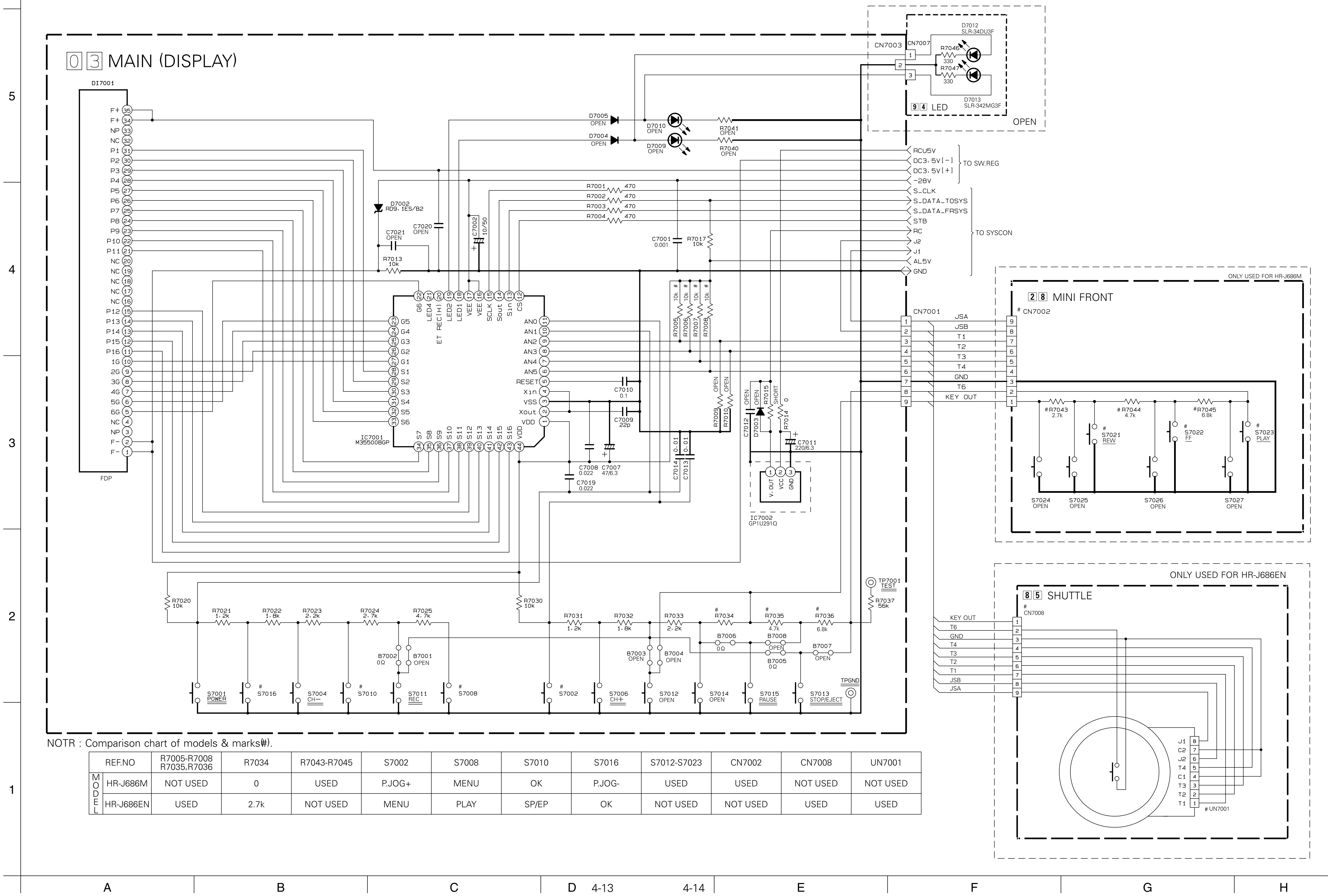
1


03 MAIN [TUNER/DEMOD]
TU6001
ANT IN
ANT OUT
ARC
NTSC
BB(AL5V)
AUDIO IN
MOD SDA
MOD B(AL5V)
MOD SCL
VIDEO IN
CH SW
MOD B(SW5V)
CONV.CTL(H)
(RF AGC)
(BT)
TU CE
PLL CLK
PLL DATA
MB(SW5V)
LOCK
TU(30V)
IF OUT
IF IN
SW 1
SW 2
AUDIO OUT
(SIF OUT)
AFT
VIDEO OUT
NC(OPEN)
OPEN
TO SYSCON
AL5V
TO SW.REG
GND
RF5V
SW5V
SW12V
BT2
TO VIDEO/AUDIO
DEMOD(L)
DEMOD(R)
RF_AUDIO
CN6701
KOREA
LED
MODE_SEL
SW12V
SIF
Q6551 2SC1740S/QRS
D6551 MTZJ10B
Q6501 DTC143TUA
Q6502 DTC143TUA
IC6650 BA15218F
IC6501 UPC1854AGT
S6050 L(US4)/OPEN(US3)(US)
TO VIDEO/AUDIO
TU_VIDEO
TO TERMINAL
RF_VIDEO
CF6031 5.07MHz OPEN
Q6031 OPEN
Q6030 2SB1218A/QR
VR6601 OPEN
D6002 HZ30-2L
L6001 SHORT
L6003 SHORT
L6050 SHORT
L6032 SHORT
L6002 OPEN
TO SYSCON
LOCK(L)
TU_CE
TU_DATA
TU_CLK
AFC/JUST_CLK
TU_MUTE(H)
CONV_CTL(H)
CTL7
I2C_CLK
I2C_DATA
CTL6
B6606 OPEN
B6505 0Ω
B6020 0Ω

A | B | C | D | E | F | G | H

4.6 DISPLAY, MINI FRONT AND SHUTTLE SCHEMATIC DIAGRAMS

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



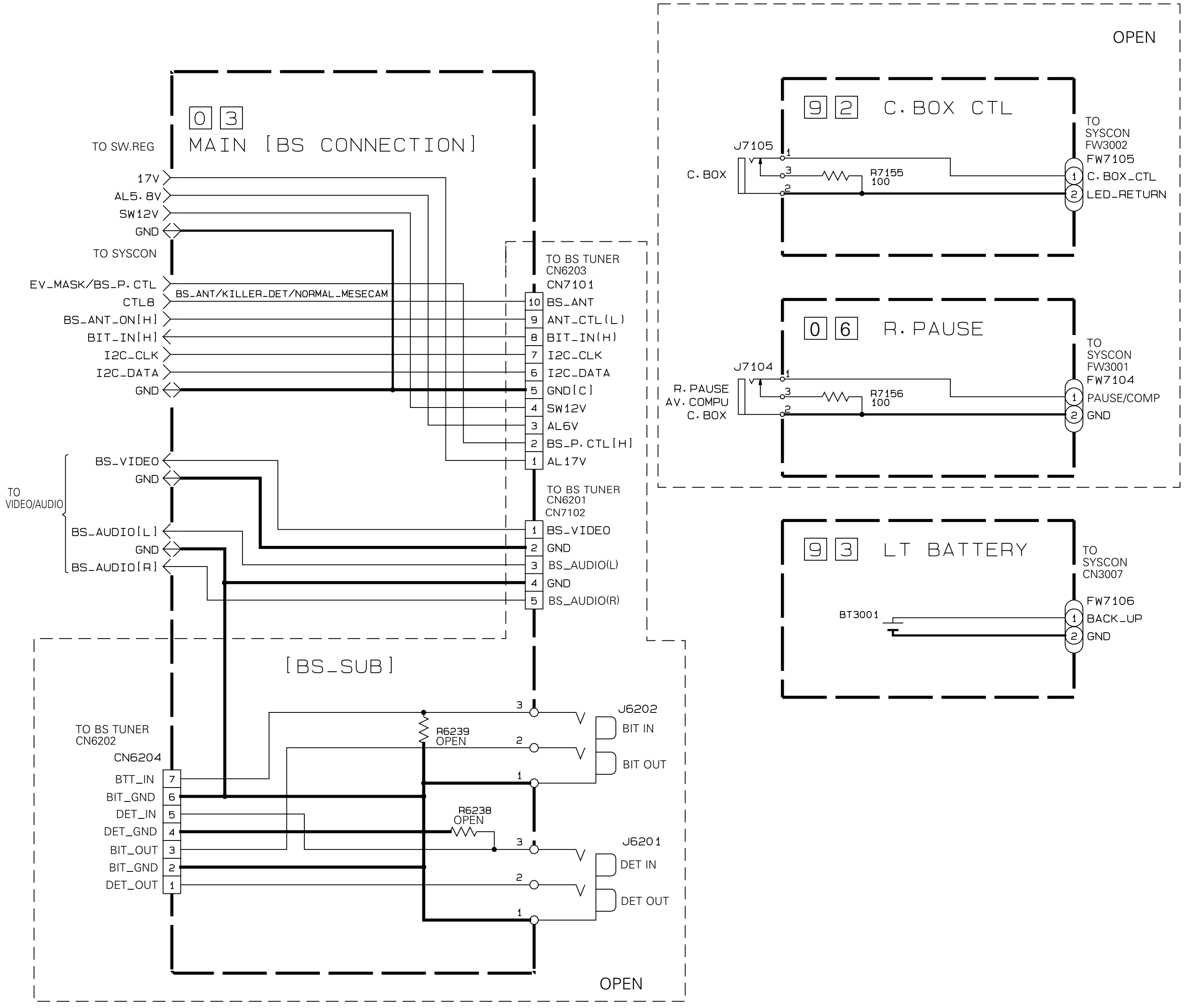
03 MAIN (DISPLAY)
DI7001
FDP
F+ 35
F+ 34
NP 33
NC 32
P1 31
P2 30
P3 29
P4 28
P5 27
P6 26
P7 25
P8 24
P9 23
P10 22
P11 21
NC 20
NC 19
NC 18
NC 17
NC 16
P12 15
P13 14
P14 13
P15 12
P16 11
1G 10
2G 9
3G 8
4G 7
5G 6
6G 5
NC 4
NP 3
F- 2
F- 1
IC7001
M35500BGP
G6
LED4
ET REC(H)
LED2
LED1
VEE
VEE
SCLK
Sout
Sin
CS
G5
G4
G3
G2
G1
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
VDD
AN0
AN1
AN2
AN3
AN4
AN5
RESET
Xin
VSS
Xout
VDD
D7002
RD9.1ES/B2
C7021
OPEN
C7020
OPEN
C7002
10/50
R7013
10k
D7005
OPEN
D7004
OPEN
D7010
OPEN
D7009
OPEN
R7041
OPEN
R7040
OPEN
R7001 470
R7002 470
R7003 470
R7004 470
C7001
0.001
R7017
10k
R7005 10k #
R7006 10k #
R7007 10k #
R7008 10k #
C7010
0.1
C7009
22p
C7008
0.022
C7007
47/6.3
C7019
0.022
C7014 0.01
C7013 0.01
R7009 OPEN
R7010 OPEN
C7012 OPEN
D7003 OPEN
R7015 SHORT
R7014 0
C7011
220/6.3
IC7002
GP1U291Q
V-OUT
VCC
GND
RCU5V
DC3.5V[-]
DC3.5V[+]
-28V
TO SW.REG
S_CLK
S_DATA_TOSYS
S_DATA_FRSYS
STB
RC
J2
J1
AL5V
GND
TO SYSCON
CN7003
CN7007
D7012
SLR-34DU3F
R7046
330
R7047
330
D7013
SLR-342MG3F
94 LED
OPEN
CN7001
JSA
JSB
T1
T2
T3
T4
GND
T6
KEY OUT
ONLY USED FOR HR-J686M
28 MINI FRONT
# CN7002
# R7043
2.7k
# R7044
4.7k
# R7045
6.8k
# S7021
REW
# S7022
FF
# S7023
PLAY
S7024
OPEN
S7025
OPEN
S7026
OPEN
S7027
OPEN
R7020
10k
R7021
1.2k
R7022
1.8k
R7023
2.2k
R7024
2.7k
R7025
4.7k
B7002
0Ω
B7001
OPEN
R7030
10k
R7031
1.2k
R7032
1.8k
R7033
2.2k
# R7034
# R7035
4.7k
# R7036
6.8k
B7006
0Ω
B7008
OPEN
B7003
OPEN
B7004
OPEN
B7005
0Ω
B7007
OPEN
TP7001
TEST
R7037
56k
TPGND
S7001
POWER
# S7016
S7004
CH−
# S7010
S7011
REC
# S7008
# S7002
S7006
CH+
S7012
OPEN
S7014
OPEN
S7015
PAUSE
S7013
STOP/EJECT
ONLY USED FOR HR-J686EN
85 SHUTTLE
# CN7008
KEY OUT
T6
GND
T4
T3
T2
T1
JSB
JSA
J1
C2
J2
T4
C1
T3
T2
T1
# UN7001
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTR : Comparison chart of models & marks(#).

REF.NO		R7005-R7008 R7035,R7036	R7034	R7043-R7045	S7002	S7008	S7010	S7016	S7012-S7023	CN7002	CN7008	UN7001
MODEL	HR-J686M	NOT USED	0	USED	P.JOG+	MENU	OK	P.JOG-	USED	USED	NOT USED	NOT USED
	HR-J686EN	USED	2.7k	NOT USED	MENU	PLAY	SP/EP	OK	NOT USED	NOT USED	USED	USED

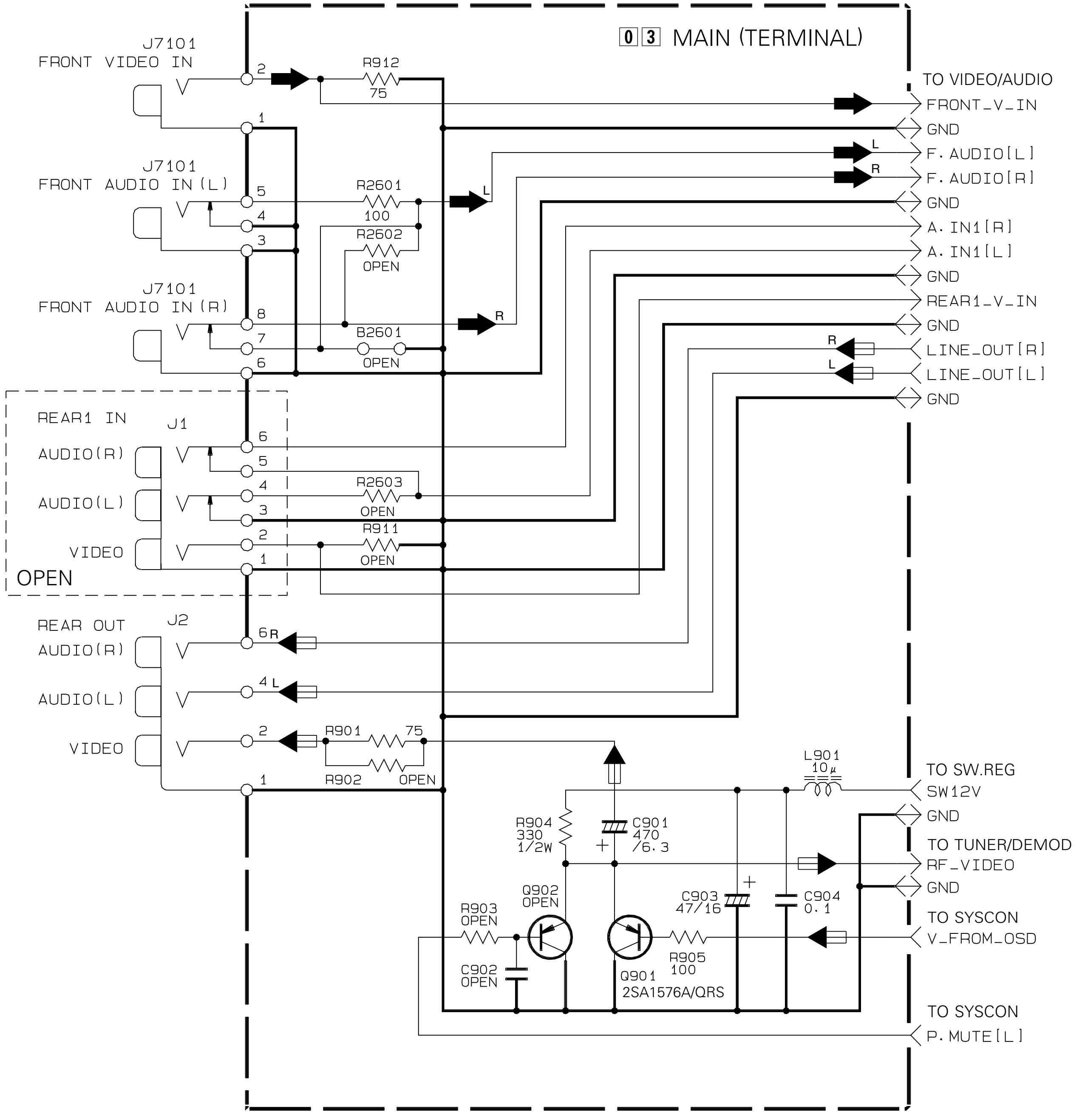
4.7 BS CONNECTION AND LITHIUM BATTERY SCHEMATIC DIAGRAMS

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.


03 MAIN [BS CONNECTION]
TO SW.REG
17V
AL5.8V
SW12V
GND
TO SYSCON
EV_MASK/BS_P.CTL
CTL8
BS_ANT_ON[H]
BIT_IN[H]
I2C_CLK
I2C_DATA
GND
BS_ANT/KILLER_DET/NORMAL_MESECAM
TO BS TUNER
CN6203
CN7101
10 BS_ANT
9 ANT_CTL(L)
8 BIT_IN(H)
7 I2C_CLK
6 I2C_DATA
5 GND[C]
4 SW12V
3 AL6V
2 BS_P.CTL[H]
1 AL17V
TO VIDEO/AUDIO
BS_VIDEO
GND
BS_AUDIO[L]
GND
BS_AUDIO[R]
TO BS TUNER
CN6201
CN7102
1 BS_VIDEO
2 GND
3 BS_AUDIO(L)
4 GND
5 BS_AUDIO(R)
[BS_SUB]
TO BS TUNER
CN6202
CN6204
BTT_IN 7
BIT_GND 6
DET_IN 5
DET_GND 4
BIT_OUT 3
BIT_GND 2
DET_OUT 1
R6239
OPEN
R6238
OPEN
J6202
BIT IN
BIT OUT
J6201
DET IN
DET OUT
OPEN
OPEN
92 C.BOX CTL
J7105
C.BOX
R7155
100
TO SYSCON
FW3002
FW7105
1 C.BOX_CTL
2 LED_RETURN
06 R.PAUSE
J7104
R.PAUSE
AV.COMPU
C.BOX
R7156
100
TO SYSCON
FW3001
FW7104
1 PAUSE/COMP
2 GND
93 LT BATTERY
BT3001
TO SYSCON
CN3007
FW7106
1 BACK_UP
2 GND

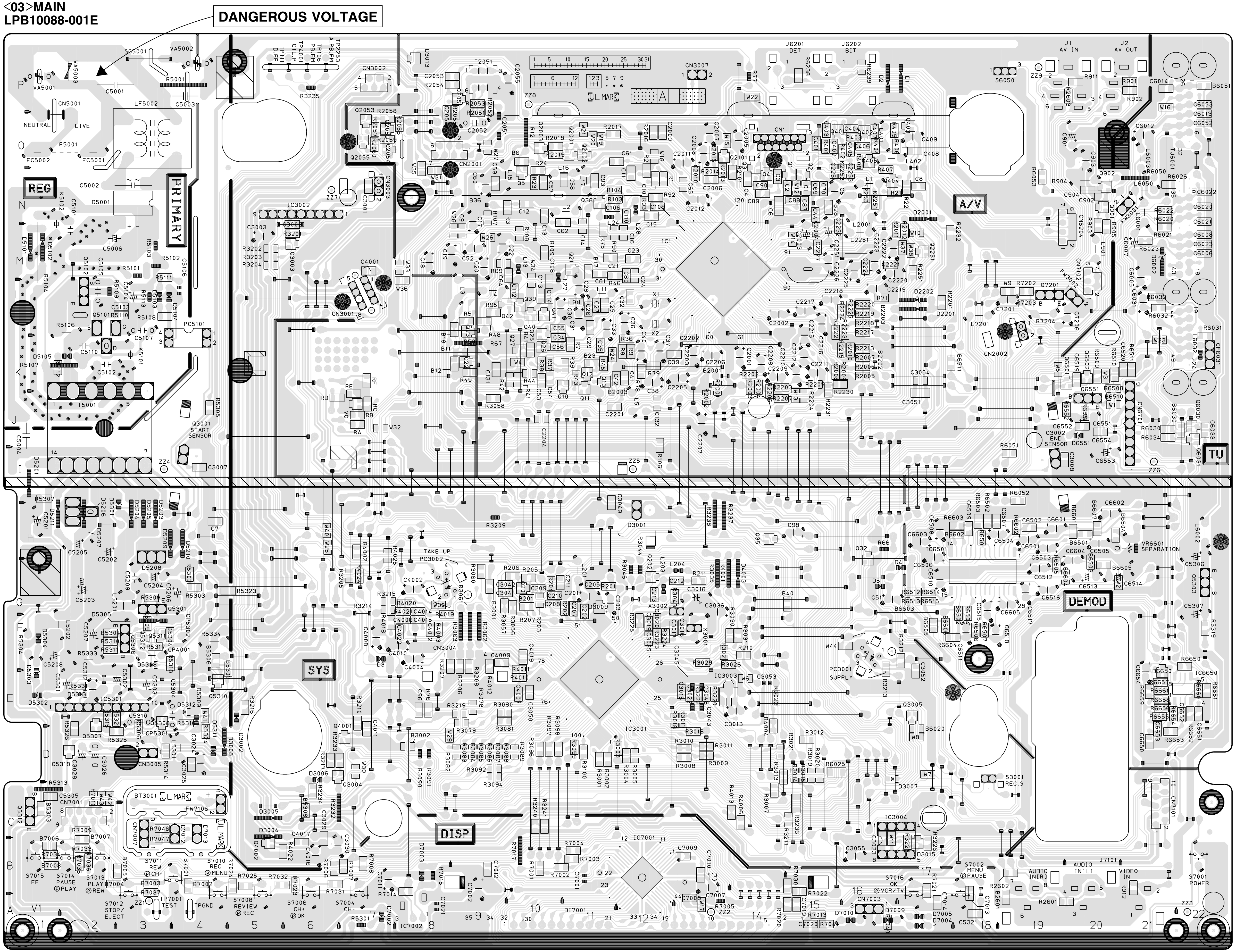
4.8 TERMINAL SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

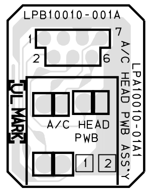

03 MAIN (TERMINAL)
J7101
FRONT VIDEO IN
J7101
FRONT AUDIO IN(L)
J7101
FRONT AUDIO IN(R)
R912
75
R2601
100
R2602
OPEN
B2601
OPEN
REAR1 IN
J1
AUDIO(R)
AUDIO(L)
VIDEO
OPEN
R2603
OPEN
R911
OPEN
REAR OUT
J2
AUDIO(R)
AUDIO(L)
VIDEO
R901
75
R902
OPEN
TO VIDEO/AUDIO
FRONT_V_IN
GND
F.AUDIO[L]
F.AUDIO[R]
GND
A.IN1[R]
A.IN1[L]
GND
REAR1_V_IN
GND
LINE_OUT[R]
LINE_OUT[L]
GND
L901
10μ
TO SW.REG
SW12V
GND
R904
330
1/2W
C901
470
/6.3
TO TUNER/DEMOD
RF_VIDEO
GND
Q902
OPEN
R903
OPEN
C902
OPEN
Q901
2SA1576A/QRS
R905
100
C903
47/16
C904
0.1
TO SYSCON
V_FROM_OSD
TO SYSCON
P.MUTE[L]

4.9 MAIN, A/C HEAD, MINIFRONT, SHUTTLE AND LOADING MOTOR CIRCUIT BOARDS

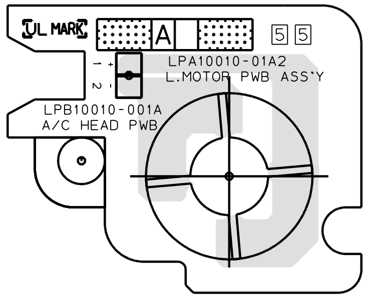
<03>MAIN
LPB10088-001E


DANGEROUS VOLTAGE
REG
PRIMARY
A/V
TU
SYS
DISP
DEMOD
NEUTRAL
LIVE
T5001
IC3002
IC3001
IC7001
IC3003
IC3004
J1 AV IN
J2 AV OUT
J6201 DET
J6202 BIT
TAKE UP PC3002
PC3001 SUPPLY
Q3001 START SENSOR
Q3002 END SENSOR
VR6601 SEPARATION
BT3001
S7015 FF
S7014 PAUSE ⓟPLAY
S7013 PLAY ⓟREW
S7012 STOP/ EJECT
S7011 REW
S7010 REC ⓟMENU
S7008 REVIEW ⓟREC
S7006 CH+ ⓟOK
S7004 CH-
S7016 OK ⓟVCR/TV
S7002 MENU ⓟPAUSE
S7001 POWER
S3001 REC.S
TP7001 TEST
TPGND
AUDIO IN[R]
AUDIO IN[L]
VIDEO IN
J7101
CN7003

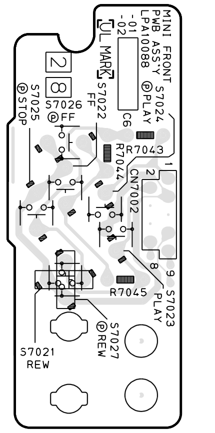
<12>A/C HEAD
LPB10010-001A


LPB10010-001A
LPA10010-01A1 A/C HEAD PWB ASS'Y
A/C HEAD PWB

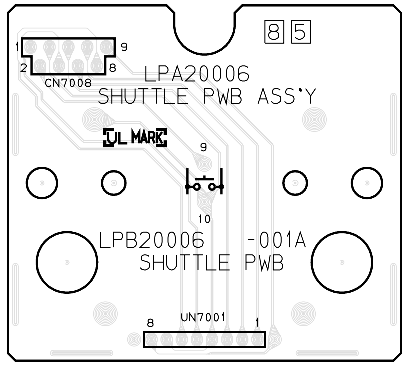
<55>LOADING MOTOR
LPB10010-001A


55
LPA10010-01A2 L.MOTOR PWB ASS'Y
LPB10010-001A A/C HEAD PWB

<28>MINI FRONT [HR-J686M]
LPB10088-001E


28
MINI FRONT PWB ASS'Y
S7025 ⓟSTOP
S7026 FF
S7024 ⓟPLAY
S7023 PLAY
S7027 ⓟREW
S7021 REW

<85>SHUTTLE [HR-J686EN]
LPB20006-001A


85
CN7008
LPA20006 SHUTTLE PWB ASS'Y
LPB20006 -001A SHUTTLE PWB
UN7001

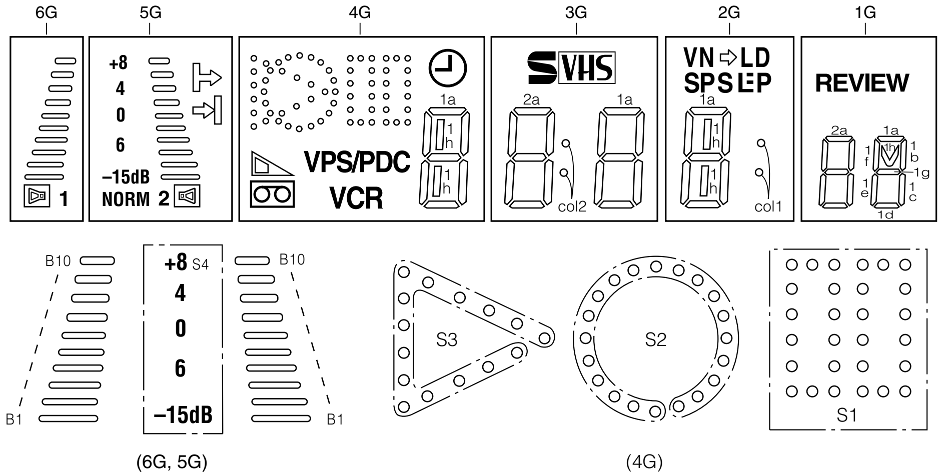
COMPONENT PARTS LOCATION GUIDE ＜MAIN＞

REF.NO.	LOCATION		
CAPACITOR			
C1	B	C	15N
C2	B	C	15N
C3	B	C	14N
C4	B	C	14N
C5	A	D	15N
C6	B	C	14N
C7	B	C	4H
C8	B	C	17N
C9	B	C	9M
C10	B	C	12N
C11	B	C	12N
C12	B	C	10N
C13	B	C	10N
C14	B	C	11M
C15	B	C	12N
C16	B	C	12M
C17	A	D	9M
C18	A	D	8M
C19	A	D	9M
C20	A	D	9M
C21	B	C	11M
C22	A	D	9M
C23	B	C	12M
C24	B	C	12M
C25	B	C	11L
C26	B	C	11L
C27	B	C	11L
C28	A	D	11L
C29	B	C	11L
C30	A	D	10L
C31	A	D	11L
C32	B	C	12L
C33	A	D	11L
C34	B	C	10K
C35	B	C	11K
C36	A	D	12L
C37	A	D	12K
C38	A	D	12K
C39	B	C	13K
C40	A	D	12K
C41	B	C	12K
C42	B	C	11K
C44	B	C	15N
C51	A	D	16G
C52	A	D	9M
C53	B	C	10K
C54	B	C	10K
C55	B	C	10L
C56	B	C	10K
C57	B	C	10N
C58	B	C	11N
C59	B	C	9N
C60	A	D	9N
C61	B	C	11O
C62	B	C	11N
C64	B	C	10M
C65	B	C	13N
C69	B	C	15N
C70	B	C	15N
C80	B	C	12M
C81	B	C	11M
C87	B	C	15N
C88	B	C	15N
C89	B	C	14N
C90	B	C	14N
C93	B	C	11N
C96	B	C	8E
C98	A	D	15H
C106	B	C	11N
C108	B	C	10L
C109	B	C	12N
C110	B	C	12N
C112	B	C	10L
C113	B	C	10L
C114	B	C	10L
C131	B	C	9K
C132	B	C	12J
C201	A	D	11G
C202	B	C	11G
C203	A	D	11G
C205	B	C	11G
C207	B	C	11G
C208	B	C	10G
C209	B	C	10G
C210	B	C	10G
C211	B	C	10G
C212	B	C	13G
C213	B	C	12G
C401	B	C	15O
C402	B	C	15O
C403	B	C	15O
C404	B	C	16O
C405	B	C	16O
C406	B	C	16O
C407	B	C	16O
C408	B	C	17O
C409	A	D	17O
C901	A	D	20O
C902	B	C	20N
C903	A	D	20O
C904	B	C	20N
C2001	A	D	14K
C2002	A	D	14L
C2003	A	D	15M
C2004	B	C	15M
C2005	A	D	14O
C2006	B	C	13N
C2007	A	D	13O
C2008	A	D	13O
C2009	B	C	12O
C2010	B	C	13N
C2011	A	D	13O
C2012	A	D	13N
C2051	A	D	9O
C2052	A	D	9O
C2053	B	C	9P
C2054	B	C	8O
C2055	A	D	10P
C2201	B	C	11J
C2202	B	C	13K
C2203	A	D	13K
C2204	B	C	10J
C2205	A	D	13K
C2206	A	D	13K
C2207	A	D	13J
C2208	A	D	14K
C2209	A	D	14K
C2210	A	D	15K
C2211	A	D	15K
C2212	A	D	15K
C2215	A	D	15K
C2216	A	D	15L
C2217	A	D	15L
C2218	A	D	15L
C2219	A	D	16L
C2220	A	D	16M
C2221	B	C	16M
C2222	A	D	16M
C2223	A	D	16M
C2224	B	C	16M
C2225	A	D	16M
C2226	A	D	15M
C2227	B	C	15M
C2251	A	D	15N
C2252	B	C	15M
C2253	B	C	16N
C2254	B	C	15N
C3001	B	C	7N
C3002	B	C	6M
C3003	A	D	5M
C3007	B	C	4I
C3008	B	C	20I
C3013	A	D	14E
C3015	B	C	13E
C3016	B	C	13F
C3017	B	C	13F
C3018	A	D	13G
C3019	B	C	12F
C3020	B	C	12F
C3022	B	C	13E
C3023	B	C	16B
C3024	A	D	4D
C3025	B	C	4D
C3026	A	D	2D
C3028	A	D	2D
C3029	B	C	6B
C3030	A	D	6B
C3035	B	C	12F
C3036	A	D	13G
C3041	B	C	9G
C3042	B	C	9G
C3043	A	D	13E
C3045	A	D	13E
C3048	B	C	13E
C3049	B	C	11I
C3050	B	C	10E
C3051	B	C	17J
C3052	B	C	17E
C3053	A	D	14E
C3054	B	C	17K
C3055	A	D	16B
C4001	B	C	7M
C4002	A	D	8G
C4004	A	D	8F
C4006	B	C	8F
C4007	B	C	10E
C4008	A	D	7F
C4009	B	C	9F
C4010	A	D	8F
C4011	B	C	7D
C4012	B	C	8F
C4014	B	C	8G
C4015	B	C	8F
C4016	A	D	6B
C4017	B	C	6B
C4019	B	C	10F
C4022	B	C	8F
C5001	A	D	2P
C5002	A	D	2N
C5003	A	D	4P
C5004	A	D	1I
C5006	A	D	2M
C5101	A	D	2M
C5102	A	D	2K
C5103	B	C	3L
C5104	A	D	3L
C5105	A	D	2L
C5106	A	D	4L
C5107	A	D	3L
C5110	A	D	2K
C5201	A	D	1H
C5202	A	D	3H
C5203	A	D	2G
C5204	A	D	3G
C5205	A	D	2H
C5206	A	D	4G
C5207	A	D	2F
C5208	A	D	1F
C5209	A	D	3G
C5301	A	D	2E
C5302	A	D	3E
C5303	A	D	3E
C5304	A	D	4E
C5305	B	C	1C
C5306	A	D	22H
C5307	A	D	22G
C5310	A	D	3E
C5312	A	D	2E
C5321	B	C	18A
C6005	A	D	21L
C6006	B	C	22M
C6007	A	D	21M
C6008	B	C	22M
C6012	A	D	21O
C6013	B	C	22O
C6014	B	C	21P
C6020	B	C	22N
C6021	B	C	22N
C6022	B	C	22N
C6023	B	C	22M
C6031	A	D	21L
C6033	B	C	22J
C6052	B	C	22O
C6053	B	C	22P
C6501	A	D	19H
C6502	B	C	19H
C6503	A	D	19H
C6504	A	D	18H
C6505	A	D	20H
C6506	A	D	17H
C6507	B	C	18H
C6508	A	D	17H
C6509	B	C	18H
C6510	A	D	17G
C6511	A	D	18F
C6512	A	D	19G
C6513	A	D	20G
C6514	A	D	20G
C6515	A	D	18G
C6516	A	D	19G
C6517	A	D	19G
C6518	A	D	18F
C6519	B	C	20K
C6520	B	C	21K
C6551	A	D	20J
C6552	B	C	20J
C6553	A	D	20I
C6554	B	C	20J
C6601	A	D	19H
C6602	A	D	20H
C6603	A	D	17H
C6604	A	D	20G
C6605	A	D	18G
C6650	B	C	21D
C6651	B	C	22E
C6652	B	C	22E
C6653	B	C	21D
C6654	A	D	21F
C7001	A	D	11B
C7002	A	D	9B
C7007	A	D	13B
C7008	B	C	13A
C7009	B	C	13B
C7010	B	C	13B
C7011	A	D	7B
C7012	B	C	9B
C7013	B	C	18B
C7014	B	C	17A
C7019	B	C	15A
C7020	B	C	15A
C7021	A	D	8A
C7201	A	D	19L
C7206	A	D	20L
CONNECTOR			
CN1	A	D	14O
CN2001	A	D	9O
CN2002	A	D	19L
CN3001	A	D	7L
CN3002	A	D	7P
CN3003	A	D	7N
CN3004	A	D	9F
CN3005	A	D	3D
CN3007	A	D	13P
CN5001	A	D	1O
CN6204	A	D	19M
CN6701	A	D	21I
CN7001	A	D	2C
CN7003	A	D	16A
CN7101	A	D	21C
CN7102	A	D	20L
DIODE			
D1	A	D	17P
D2	A	D	16P
D3	A	D	7F
D4	A	D	16G
D5	A	D	16G
D2001	A	D	17N
D2201	A	D	16L
D2202	A	D	16L
D3001	A	D	12H
D3002	A	D	5D
D3004	A	D	5C
D3005	A	D	5C
D3006	A	D	6D
D3007	B	C	16D
D3008	A	D	4E
D3009	B	C	11G
D3013	B	C	8P
D3015	B	C	17B
D4003	A	D	14H
D5001	B	C	3N
D5101	A	D	1M
D5102	A	D	1M
D5103	A	D	3L
D5104	A	D	3L
D5105	A	D	2K
D5201	A	D	1I
D5203	A	D	3I
D5204	A	D	3I
D5205	A	D	3I
D5206	A	D	2H
D5207	A	D	2I
D5208	A	D	3H
D5209	A	D	3H
D5210	A	D	4H
D5211	A	D	1H
D5301	A	D	3I
D5302	A	D	1E
D5303	A	D	1E
D5304	A	D	1F
D5305	A	D	3F
D5308	B	C	3F
D5309	A	D	4D
D5311	A	D	4D
D5312	B	C	4E
D5313	B	C	2E
D6002	A	D	21L
D6551	A	D	20J
D6650	B	C	21E
D7002	A	D	7A
D7003	A	D	8B
D7004	A	D	17A
D7005	A	D	17A
D7009	A	D	16A
D7010	A	D	16A
IC			
IC1	B	C	13M
IC3001	B	C	11E
IC3002	A	D	7N
IC3003	B	C	13E
IC3004	A	D	16C
IC5301	A	D	2E
IC6501	B	C	18G
IC6650	B	C	22E
IC7001	B	C	12B
IC7002	A	D	8A
JACK			
J1	A	D	20P
J2	A	D	21P
J6201	A	D	15P
J6202	A	D	16P
J7101	A	D	20A
COIL			
L1	A	D	16N
L2	A	D	10N
L3	A	D	9L
L4	A	D	9L
L5	A	D	12J
L11	A	D	11L
L13	A	D	10M
L15	A	D	9O
L16	A	D	10N
L17	A	D	11N
L24	A	D	11N
L27	A	D	10L
L28	A	D	12N
L201	A	D	11G
L203	A	D	12G
L204	A	D	13G
L401	A	D	16O
L402	A	D	17O
L901	A	D	20M
L2001	A	D	16N
L2251	A	D	16M
L5201	A	D	3G
L5202	A	D	1F
L5301	A	D	4D
L6001	A	D	21N
L6002	A	D	22H
L6003	A	D	21O
L6032	A	D	22K
L6050	A	D	21N
L7201	A	D	18L
TRANSISTOR			
Q1	B	C	15N
Q2	B	C	15N
Q3	B	C	14O
Q4	B	C	14N
Q5	B	C	10N
Q10	B	C	11K
Q11	B	C	11K
Q12	B	C	11K
Q13	B	C	11K
Q21	B	C	11M
Q22	B	C	9K
Q23	B	C	9L
Q25	B	C	10L
Q26	B	C	10K
Q27	B	C	10K
Q32	B	C	16H
Q35	B	C	14H
Q38	B	C	11N
Q39	B	C	10L
Q40	B	C	10L
Q41	B	C	10L
Q42	B	C	9L
Q201	B	C	10G
Q202	B	C	12G
Q401	B	C	15O
Q402	B	C	16O
Q403	B	C	17O
Q404	B	C	16N
Q405	B	C	16O
Q901	B	C	20N
Q902	B	C	20N
Q2001	B	C	11O
Q2002	B	C	11O
Q2003	B	C	10O
Q2051	B	C	9P
Q2052	B	C	7O
Q2053	B	C	7O
Q2054	B	C	7O
Q2055	B	C	7O
Q2101	B	C	13O
Q2251	B	C	17M
Q3001	A	D	4I
Q3002	A	D	19I
Q3003	B	C	6M
Q3004	B	C	6D
Q3005	B	C	17E
Q4001	B	C	7D
Q4002	B	C	5B
Q5101	A	D	2L
Q5102	A	D	2L
Q5301	A	D	3G
Q5302	B	C	3F
Q5303	A	D	22G
Q5306	A	D	3F
Q5307	B	C	2E
Q5308	B	C	3E
Q5310	B	C	4E
Q5311	B	C	3F
Q5312	A	D	1C
Q5318	B	C	2D
Q6030	B	C	22J
Q6031	B	C	22J
Q6501	B	C	20K
Q6502	B	C	20K
Q6551	A	D	20J
Q7201	A	D	19L
QA	B	C	7J
RESISTOR			
R1	B	C	12N
R2	B	C	12N
R3	B	C	10N
R5	B	C	9L
R6	B	C	11L
R7	B	C	11K
R8	B	C	12K
R9	B	C	12K
R12	A	D	10O
R21	B	C	16N
R22	B	C	17N
R23	B	C	10N
R24	B	C	10N
R36	B	C	12K
R37	B	C	10K
R38	B	C	10K
R39	B	C	11K
R41	B	C	10K
R42	B	C	10K
R43	B	C	11K
R44	B	C	10K
R45	B	C	11K
R46	B	C	11M
R48	B	C	9L
R49	B	C	9K
R50	B	C	9K
R66	A	D	16H
R67	A	D	8K
R69	B	C	9M
R71	B	C	16L
R75	B	C	11M
R76	B	C	8E
R77	A	D	14P
R78	B	C	12K
R79	B	C	12K
R90	B	C	11M
R92	B	C	12N
R93	B	C	12N
R95	B	C	9L
R103	B	C	11N
R104	B	C	11N
R106	B	C	12J
R107	B	C	9N
R108	B	C	10M
R109	B	C	10M
R201	B	C	11G
R202	B	C	11G
R203	B	C	10G
R204	B	C	10G
R205	B	C	10G
R206	B	C	10G
R207	B	C	10G
R210	B	C	14F
R211	B	C	13G
R401	B	C	15O
R402	B	C	16O
R403	B	C	16O
R404	B	C	16O
R405	B	C	16O
R406	B	C	16O
R407	B	C	16N
R408	B	C	16O
R901	B	C	21P
R902	B	C	21P
R903	B	C	20M
R904	A	D	20N
R905	B	C	20M
R911	B	C	20P
R912	B	C	21B
R2001	B	C	13K
R2002	B	C	13J
R2003	B	C	14K
R2004	B	C	14K
R2005	B	C	16K
R2006	B	C	16K
R2007	B	C	16K
R2008	B	C	15K
R2009	B	C	16K
R2010	B	C	16K
R2011	B	C	16M
R2012	B	C	17M
R2013	B	C	13N
R2014	B	C	13N
R2015	B	C	13O
R2016	B	C	12O
R2017	B	C	11O
R2018	B	C	10O
R2019	B	C	10O
R2051	B	C	9O
R2052	B	C	9P
R2053	B	C	9P
R2054	B	C	9P
R2055	B	C	9O
R2056	B	C	8O
R2057	B	C	7O
R2058	B	C	7O
R2059	B	C	7O
R2060	B	C	7O
R2101	B	C	14N
R2201	B	C	17L
R2202	B	C	14K
R2203	B	C	14K
R2204	B	C	15J
R2205	B	C	15K
R2206	B	C	14J
R2207	B	C	14J
R2213	B	C	16K
R2215	B	C	16K
R2217	B	C	16L
R2218	B	C	16L
R2219	B	C	16L
R2220	B	C	16L
R2222	B	C	15L
R2223	B	C	16L
R2224	B	C	16L
R2225	B	C	16L
R2230	B	C	15K
R2231	B	C	15K
R2232	B	C	17M
R2251	B	C	17M
R2601	B	C	20A
R2602	B	C	19B
R2603	B	C	20P
R3001	B	C	11D
R3002	B	C	11D
R3003	B	C	12D
R3004	B	C	12D
R3005	B	C	12D
R3007	B	C	14C
R3008	B	C	13D
R3009	B	C	13D
R3010	B	C	13D
R3011	B	C	13D
R3012	B	C	15D
R3013	B	C	14D
R3014	B	C	15D
R3015	B	C	15D
R3016	B	C	13D
R3017	B	C	13E
R3018	B	C	13E
R3019	B	C	15D
R3020	B	C	15D
R3021	B	C	14D
R3022	B	C	14E
R3026	B	C	13F
R3027	B	C	13F
R3029	B	C	13F
R3030	B	C	14F
R3031	B	C	14F
R3035	A	D	13H
R3043	B	C	13G
R3044	A	D	12G
R3046	A	D	12G
R3056	B	C	10G
R3057	B	C	9G
R3058	B	C	9J
R3060	B	C	9G
R3061	A	D	9G
R3062	A	D	9G
R3063	A	D	9G
R3078	B	C	9E
R3079	B	C	9E
R3080	B	C	9E
R3081	B	C	9E
R3082	B	C	9D
R3083	B	C	9D
R3084	B	C	9D
R3085	B	C	9D
R3086	B	C	9D
R3087	B	C	9D
R3088	B	C	10D
R3089	B	C	10D
R3090	A	D	8D
R3091	A	D	8D
R3092	B	C	9D
R3094	B	C	9D
R3096	B	C	10D
R3097	B	C	10D
R3098	B	C	10D
R3099	B	C	11D
R3100	B	C	11D
R3201	B	C	6M
R3202	B	C	5M
R3203	B	C	5M
R3204	B	C	5M
R3205	B	C	7G
R3206	B	C	9F
R3207	B	C	9F
R3208	B	C	9F
R3209	A	D	9H
R3210	B	C	7E
R3211	B	C	15C
R3212	B	C	17F
R3213	B	C	16F
R3214	B	C	7G
R3215	B	C	7G
R3216	B	C	5E
R3217	B	C	6D
R3219	B	C	9E
R3220	B	C	13E
R3222	B	C	13E
R3223	B	C	12F
R3224	B	C	12F
R3225	B	C	12F
R3226	B	C	17B
R3227	B	C	17B
R3232	A	D	7C
R3233	B	C	7D
R3234	B	C	6C
R3235	A	D	6P
R3236	B	C	15C
R3237	A	D	13I
R3238	A	D	13I
R3240	B	C	10C
R3241	B	C	10C
R4001	A	D	13G
R4002	B	C	7H
R4003	B	C	8F
R4004	B	C	14E
R4006	B	C	14C
R4010	B	C	10E
R4011	B	C	10F
R4012	B	C	9F
R4013	B	C	14C
R4018	B	C	7F
R4019	B	C	8G
R4020	B	C	8G
R4021	B	C	8G
R4022	B	C	6B
R4024	B	C	7G
R4025	B	C	7H
R5001	A	D	4P
R5101	A	D	3M
R5102	A	D	3M
R5103	A	D	3M
R5104	A	D	1L
R5106	A	D	1L
R5107	A	D	2K
R5108	B	C	3L
R5109	A	D	2L
R5110	B	C	3L
R5111	B	C	3M
R5112	B	C	1K
R5113	A	D	3L
R5301	A	D	7A
R5302	B	C	4G
R5303	B	C	4G
R5304	A	D	1F
R5305	B	C	4J
R5306	B	C	3D
R5307	B	C	1I
R5308	B	C	3G
R5309	B	C	3F
R5310	B	C	2F
R5311	B	C	2F
R5313	A	D	1C
R5314	B	C	3D
R5315	B	C	2E
R5316	B	C	4E
R5317	B	C	3F
R5318	B	C	3F
R5319	B	C	22F
R5323	B	C	5G
R5324	B	C	4D
R5325	B	C	3D
R5326	B	C	2D
R5327	B	C	3E
R5331	B	C	2E
R5333	A	D	2F
R5334	A	D	4F
R6020	B	C	21N
R6021	B	C	21M
R6022	B	C	21N
R6023	B	C	21M
R6025	B	C	15D
R6026	B	C	21N
R6030	B	C	21J
R6031	B	C	22K
R6032	B	C	21L
R6033	B	C	21L
R6034	B	C	21J
R6050	A	D	21N
R6051	B	C	19I
R6052	B	C	19I
R6053	B	C	19N
R6238	B	C	15P
R6239	B	C	16P
R6501	B	C	18H
R6502	B	C	18H
R6503	B	C	18H
R6504	B	C	18G
R6505	B	C	19G
R6506	B	C	18F
R6507	B	C	18F
R6508	B	C	20K
R6509	B	C	20K
R6510	B	C	20K
R6511	B	C	21K
R6512	B	C	17G
R6513	B	C	17G
R6514	B	C	17G
R6515	B	C	17G
R6551	B	C	20J
R6552	B	C	20J
R6602	B	C	19H
R6603	B	C	18H
R6604	B	C	18F
R6650	B	C	22F
R6651	B	C	22E
R6652	B	C	22E
R6653	B	C	21D
R6654	B	C	21E
R6655	B	C	21E
R6656	B	C	21E
R6657	B	C	21E
R6658	B	C	21E
R6659	B	C	21E
R6660	B	C	22E
R6661	B	C	21E
R7001	B	C	10B
R7002	B	C	10B
R7003	B	C	11B
R7004	B	C	11B
R7005	A	D	14A
R7006	B	C	6B
R7007	B	C	7B
R7008	B	C	7B
R7009	B	C	2C
R7010	B	C	2C
R7013	B	C	15A
R7014	B	C	8B
R7015	A	D	8B
R7017	A	D	10B
R7020	B	C	15A
R7021	B	C	17B
R7022	B	C	15B
R7023	B	C	6B
R7024	B	C	5B
R7025	B	C	5B
R7030	B	C	15B
R7031	B	C	6B
R7032	B	C	5B
R7033	B	C	2B
R7034	B	C	1B
R7035	B	C	2B
R7036	B	C	2B
R7037	B	C	3B
R7040	B	C	16A
R7041	B	C	15A
R7202	B	C	19L
R7203	B	C	19L
R7204	A	D	19L
RA	B	C	7J
RB	B	C	7J
RC	B	C	7J
RD	B	C	6J
RE	B	C	7J
RF	B	C	7K
VR6601	A	D	21H
SWITCH			
S3001	A	D	18C
S6050	A	D	18P
S7001	A	D	22B
S7002	A	D	18B
S7004	A	D	7B
S7006	A	D	6B
S7008	A	D	5B
S7010	A	D	4B
S7011	A	D	4B
S7012	A	D	3B
S7013	A	D	2B
S7014	A	D	2B
S7015	A	D	1B
S7016	A	D	17B
TESTPOINT			
TP106	A	D	6P
TP111	A	D	5P
TP2253	A	D	6P
TP4001	A	D	6P
TP7001	A	D	3A
TPGND	A	D	4A
OTHER			
CF6031	A	D	22K
CP4001	A	D	3F
CP5301	A	D	3D
CP5302	A	D	4F
DI7001	A	D	12A
F5001	A	D	1O
FC5001	A	D	2O
FC5002	A	D	1O
FW3001	A	D	21N
FW3002	A	D	20L
K2251	B	C	16N
K2252	B	C	16N
K2253	B	C	16N
K5101	A	D	3K
K5102	A	D	1M
LF5002	A	D	4O
PC0573	A	D	2G
PC3001	A	D	16F
PC3002	A	D	8G
PC5101	A	D	4L
SG5001	A	D	3P
T2051	A	D	9P
T5001	A	D	1K
TU6001	A	D	22P
VA5001	A	D	1P
VA5002	A	D	4P
VA5003	A	D	2P
X1	A	D	12L
X2	A	D	12L
X3001	A	D	13F
X3002	A	D	12G

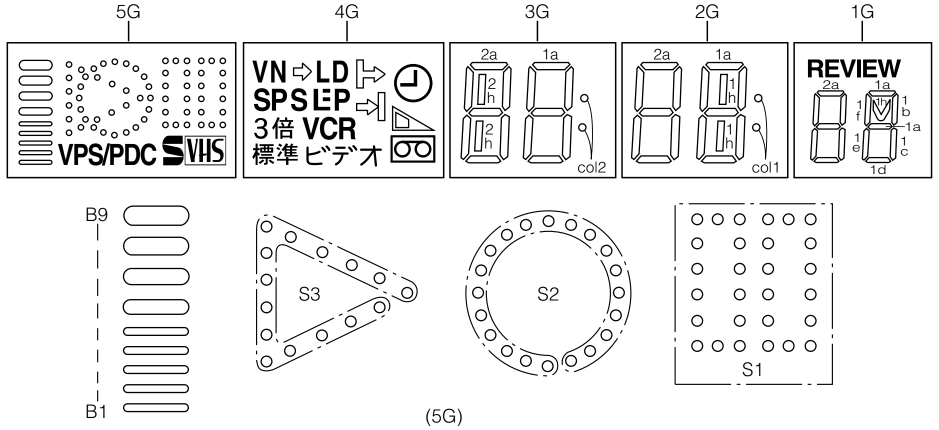
4.10 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT

[A] (FDP with audio level indicator)


6G
5G
4G
3G
2G
1G
+8
4
0
6
–15dB
NORM 2
1
VPS/PDC
VCR
SVHS
VN⇨LD
SPS L P
REVIEW
1a
2a
col2
col1
1h
1b
1g
1f
1e
1c
1d
B10
B1
S4
S3
S2
S1
(6G, 5G)
(4G)

[B] (FDP without audio level indicator)


5G
4G
3G
2G
1G
VPS/PDC
SVHS
VN⇨LD
SPS L P
3倍 VCR
標準 ビデオ
REVIEW
2a
1a
2h
1h
col2
col1
1b
1a
1g
1f
1e
1c
1d
B9
B1
S3
S2
S1
(5G)

ANODE CONNECTION
[A]

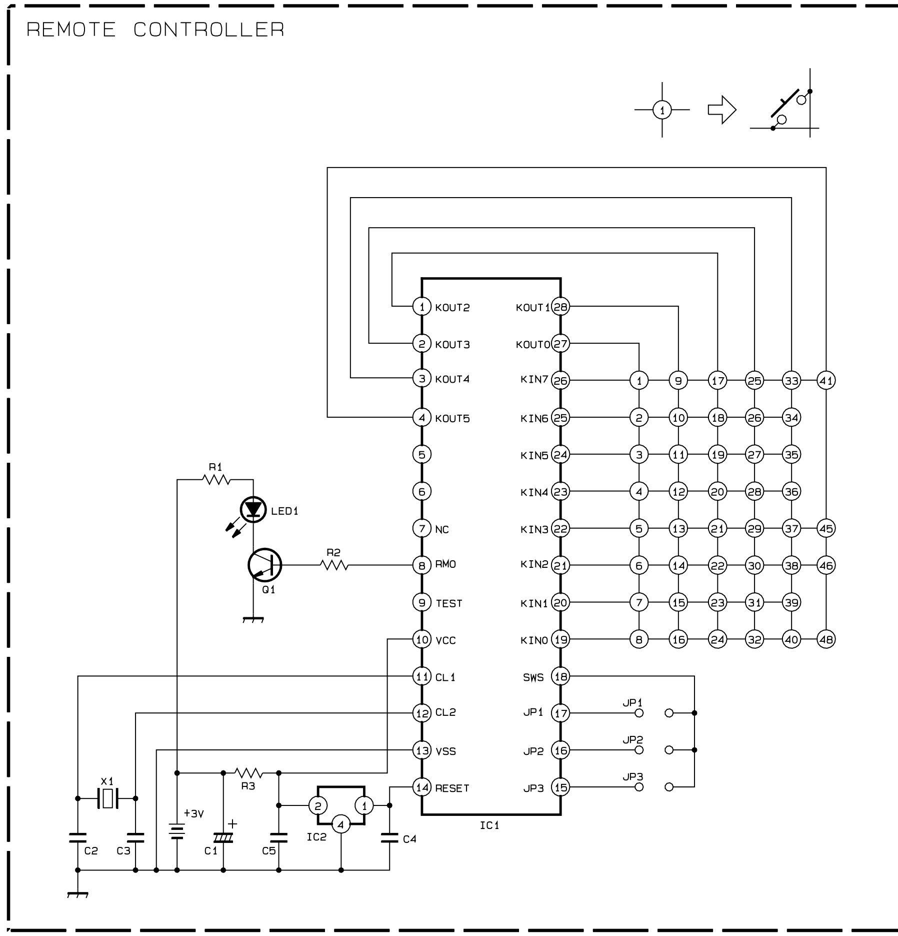
	6G	5G	4G	3G	2G	1G
P 1	—	⊢⇨	S2	1a	1a	1a
P 2	—	⇨‖	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	◷	1c	1c	1c
P 6	▷	◁	◺	1e	1e	1e
P 7	B10	B10	▣	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	: (SEP)	2d
P16	B1	B1	1h	SVHS	LP (SEP)	REVIEW

ANODE CONNECTION
[B]

	5G	4G	3G	2G	1G
P 1	S2	⊢⇨	1a	1a	1a
P 2	S1	⇨‖	1b	1b	1b
P 3	S3	3倍	1f	1f	1f
P 4	VPS/PDC	標準	1g	1g	1g
P 5	SVHS	◷	1c	1c	1c
P 6	—	◺	1e	1e	1e
P 7	—	▣	1d	1d	1d
P 8	B9	VCR	col2	1h	1h
P 9	B8	ビデオ	2a	2a	2a
P10	B7	⇨	2b	2b	2b
P11	B6	VN	2f	2f	2f
P12	B5	LD	2g	2g	2g
P13	B4	SP	2c	2c	2c
P14	B3	S (SEP)	2e	2e	2e
P15	B2	: (SEP)	2d	2d	2d
P16	B1	LP (SEP)	2h	col1	REVIEW

4.11 FDP GRID ASSIGNMENT AND ANODE CONNECTION

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


REMOTE CONTROLLER
KOUT2
KOUT3
KOUT4
KOUT5
NC
RMO
TEST
VCC
CL1
CL2
VSS
RESET
KOUT1
KOUT0
KIN7
KIN6
KIN5
KIN4
KIN3
KIN2
KIN1
KIN0
SWS
JP1
JP2
JP3
IC1
IC2
R1
R2
R3
LED1
Q1
X1
C1
C2
C3
C4
C5
+3V

	(LP20303#*#)	(LP20878#*#)
Key No.	Key Name	Key Name
1	START+	START+
2	1	1
3	4	4
4	STOP+	STOP+
5	DATE+	DATE+
6	CH+	PROG(CH)#+#
7	3	3
8	6	6
9	CANCEL/C.RESET	CANCEL
10	2	2
11	7	7
12	0	0
13	8	8
14	TIMER	TIMER
15	5	5
16	9	9
17	PROG	PROG
18	CABLE/DSS	TV
19	TV	VCR
20	PROG CHEK	PROG CHEK
21	SP/EP	#-#/#-##-#
22	SKIP SEARCH	SKIP
23	POWER	OPERATE
24	MBR SET/A/B	CABLE/SAT
25	START-	START-
26	TV/VCR	TV/VCR
27	RE-VIEW	RE-VIEW
28	STOP-	STOP-
29	DATE-	DATE-
30	CH-	PROG(CH)#-#
31	DISPLAY	DISPLAY
32	AUDIO/MUTE	AUDIO/MUTE
33	MENU	MENU
34	REC	REC
35	REW	REW
36	PLAY	PLAY
37	STOP	STOP
38	FF	FF
39	PAUSE/STILL	PAUSE
40	OK/ENTER	OK/ENTER
41	<</TV VOL-	</TV VOL-
45	△/TV CH+	▲/TV PROG#+#
46	▽/TV CH-	▼/TV PROG#-#
48	>>/TV VOL+	>>/TV VOL+
34+36	REC+PLAY	REC+PLAY
34+39	REC+PAUSE	REC+PAUSE

4.12 VOLTAGE CHARTS

<VIDEO/AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	1.4	2.1
2	2.9	2.9
3	2.5	2.5
4	1.9	1.4
5	1.9	1.5
6	2.4	2.1
7	1.5	0.8
8	0	0
9	2.6	3.0
10	2.7	2.7
11	3.0	3.0
12	2.8	2.5
13	3.0	3.3
14	2.3	2.3
15	0	0
16	2.8	2.8
17	1.5	1.5
18	2.8	2.8
19	0	2.4
20	2.8	2.8
21	2.0	2.0
22	2.8	2.8
23	2.8	2.8
24	5.0	5.0
25	0.4	0.4
26	0	0
27	2.3	2.3
28	2.3	2.3
29	1.9	1.9
30	2.1	2.1
31	0	0
32	2.7	2.7
33	5.0	5.0
34	2.7	2.2
35	5.0	5.0
36	2.7	2.7
37	2.3	2.3
38	0.3	0.3
39	1.2	1.2
40	-	-
41	2.5	2.5
42	-	-
43	0	0
44	2.2	2.2
45	4.4	4.6
46	4.9	4.7
47	2.7	2.7
48	2.5	2.5
49	5.0	5.0
50	2.5	2.5
51	2.8	2.8
52	2.3	2.3
53	2.3	2.3
54	2.4	2.4
55	2.1	2.1
56	0.4	0.4
57	2.3	2.3
58	8.7	8.7
59	4.5	4.5
60	4.5	4.5
61	4.4	4.4
62	4.3	4.3
63	2.3	2.3
64	2.3	2.3
65	1.7	1.7
66	2.3	2.3
67	4.4	4.4
68	4.4	4.4
69	2.3	2.3
70	0	0
71	0.3	0.3
72	0.2	0.2
73	0.2	0.2
74	2.3	2.3
75	2.5	2.5
76	0	0
77	2.5	2.5
78	0.3	0.3
79	0.2	0.2
80	0.2	0.2
81	2.3	2.3
82	0.7	0.7
83	0	0
84	2.3	2.3
85	2.3	2.3
86	2.2	2.2
87	1.6	1.8
88	2.3	2.3
89	2.3	2.3
90	2.3	2.3
91	0	0
92	0	0
93	0	2.4
94	0	1.7
95	0	0
96	2.4	2.4
97	2.7	2.3
98	2.5	2.3
99	4.9	4.9
100	5.0	5.0
101	0	0
102	0	0
103	0	0
104	2.3	2.3
105	2.3	2.3
106	2.3	2.3
107	4.9	4.9
108	0	0
109	0	0
110	0	0
111	0	3.5
112	2.5	2.5
113	0.5	1.0
114	0	0
115	2.5	2.5
116	2.5	2.5
117	2.5	2.5
118	0	0
119	2.5	2.5
120	0	0
Q1 – Q4 [HR-J686EN]		
E	-	-
C	-	-
B	-	-
Q12		
E	-	-
C	0	0
B	-	-
Q13 [HR-J686M]		
E	0	0
C	-	-
B	-	-
Q22		
E	1.7	1.7
C	5.0	5.0
B	2.3	2.3
Q25 [HR-J686M]		
E	0	0
C	-	-
B	-	-
Q27 [HR-J686M]		
E	0	0
C	-	-
B	-	-
Q32		
E	0	0
C	2.0	2.0
B	0	0
Q38		
E	2.3	2.3
C	5.0	5.0
B	3.0	3.0
Q2001		
E	-10.8	0
C	0	0
B	-17.3	0.7
Q2002		
E	-10.8	0
C	0	0
B	-17.0	0.7
Q2003		
E	5.0	5.0
C	-17.0	4.9
B	4.9	0
Q2051		
E	0	0
C	7.5	0.3
B	0.5	0.3
Q2052		
E	10.8	10.9
C	10.7	0.4
B	10.1	10.9
Q2053		
E	0	0
C	0	10.8
B	4.9	0
Q2054		
E	10.7	0.4
C	10.5	0.2
B	9.9	0.4
Q2055		
E	0	0
C	0	0.5
B	4.9	0
Q2251		
E	4.9	4.9
C	1.6	1.8
B	4.9	4.9
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.2	2.3
6	2.2	2.3
7	2.2	2.3
8	2.2	2.3
9	2.7	2.3
10	2.7	2.3
11	2.7	2.3
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.3	2.4
7	2.5	2.4
CN2002		
1	0	0
2	0	0

<SYSTEM CONTROL>

MODE PIN NO.	REC	PLAY
IC3001		
1	-	-
2	-	-
3	0.6	0.6
4	0	0
5	5.1	5.1
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	5.0
13	5.0	5.0
14	0	0
15	0	5.0
16	4.8	4.8
17	4.7	4.7
18	4.6	4.6
19	0	0
20	0	0
21	0	2.4
22	4.9	4.9
23	2.4	2.4
24	0	0
25	-	-
26	0	2.4
27	5.0	0
28	0	0
29	0	0
30	4.9	4.9
31	4.9	4.9
32	0	0
33	2.6	2.6
34	1.1	1.3
35	0	0
36	4.9	4.9
37	-	-
38	-	-
39	0	0
40	-	-
41	-	-
42	4.9	4.9
43	5.0	5.0
44	0	0
45	5.0	5.0
46	5.0	5.0
47	1.6	1.6
48	0	0
49	1.6	1.6
50	2.4	2.4
51	5.0	5.0
52	2.4	2.4
53	2.5	2.5
54	0	0
55	0	0
56	-	-
57	-	-
58	0	0
59	0	0
60	0	0
61	0	0
62	4.9	4.9
63	4.9	4.9
64	0	0
65	2.6	2.6
66	0.4	0.4
67	2.3	2.3
68	2.3	2.3
69	2.3	2.3
70	2.3	2.3
71	0	0
72	2.3	2.3
73	4.8	4.8
74	2.8	2.3
75	1.9	2.3
76	2.3	2.3
77	0	0
78	0	0
79	4.4	4.6
80	0	0
81	4.9	4.9
82	0	0
83	0	3.4
84	0	1.8
85	4.8	4.5
86	4.1	4.1
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	4.9	0
93	0	0
94	4.3	4.3
95	-	-
96	-	-
97	-	-
98	5.0	5.0
99	5.0	5.0
100	5.0	5.0
IC3002		
1	11.4	11.4
2	0	0
3	0	0
4	0.2	0.2
5	11.6	11.6
6	11.6	11.6
7	0	0
8	0	0
9	0	0
IC3003		
1	4.9	4.9
2	4.9	4.9
3	0	0
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	-	-
6	-	-
7	0	0
8	4.9	4.9
Q3001		
E	0	0
C	4.6	4.2
Q3002		
E	0	0
C	4.5	4.7
Q3003		
E	0	0
C	11.4	11.4
B	0.6	0.6
Q3004		
E	0	0
C	0	0
B	0.7	0.7
Q4001		
E	0	0
C	0	0
B	4.4	4.4
Q4002		
E	4.8	4.8
C	5.8	5.8
B	5.5	5.5
CN3001		
1	0	0
2	2.5	2.5
3	2.5	2.5
4	5.0	5.0
5	0	0
6	4.9	4.9
7	-	-
8	11.7	11.7
CN3002		
1	11.7	11.7
2	0	0
3	1.4	1.4
4	0.4	0.4
5	2.6	2.6
CN3003		
1	0.2	0.2
2	0.3	0.3
CN3004		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
CN3007		
1	-	-
2	0	0

<SW.REG>

MODE PIN NO.	REC	PLAY
IC5301		
1	5.7	5.7
2	5.1	5.1
3	4.8	4.8
4	0	0
5	11.5	11.5
6	10.9	10.9
7	11.6	11.6
8	5.7	5.7
9	1.3	1.3
10	4.4	4.4
Q5101		
D	87.5	85.7
S	-	-
G	-	-
Q5102		
E	0	0
C	-	-
B	-	-

<TUNER/DEMOD>

MODE PIN NO.	REC	PLAY
IC6501		
1	8.9	8.9
2	4.4	4.4
3	4.4	4.4
4	4.4	4.4
5	4.4	4.4
6	4.4	4.4
7	4.4	4.4
8	4.3	4.3
9	5.5	5.5
10	3.0	3.0
11	3.2	3.2
12	4.4	4.4
13	4.4	4.4
14	0	0
15	-	-
16	-	-
17	0	0
18	4.4	4.4
19	4.5	4.5
20	4.5	4.5
21	1.2	1.2
22	5.1	5.1
23	5.1	5.1
24	4.4	4.4
25	4.4	4.4
26	4.4	4.4
27	4.4	4.4
28	3.5	3.5
Q6030		
E	-	-
C	-	-
B	-	-
Q6501		
E	0	0
C	0	0
B	3.5	3.5
Q6502		
E	0	0
C	0	0
B	3.5	3.5
Q6551		
E	8.9	8.9
C	10.9	10.9
B	9.6	9.6

<DISPLAY>

MODE PIN NO.	REC	PLAY
IC7001		
1	4.9	4.9
2	2.1	2.1
3	0	0
4	2.1	2.1
5	4.9	4.9
6	4.9	4.9
7	4.9	4.9
8	4.9	4.9
9	4.9	4.9
10	4.9	4.9
11	4.9	4.9
12	-	-
13	4.3	-
14	4.9	4.9
15	-	-
16	-27.8	-27.8
17	-27.8	-27.8
18	-27.5	-27.5
19	-27.5	-27.5
20	-27.5	-27.5
21	-23.4	-23.4
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	4.9	4.9
IC7002		
1	5.1	5.1
2	5.1	5.1
3	0	0
CN7001 [HR-J686M]		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	0	0
8	5.0	5.0
9	5.0	5.0

<TERMINAL>

MODE PIN NO.	REC	PLAY
Q901		
E	2.4	2.4
C	0	0
B	1.7	1.7

<MINI FRONT> [HR-J686M]

MODE PIN NO.	REC	PLAY
CN7002		
1	5.0	5.0
2	5.0	5.0
3	0	0
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-

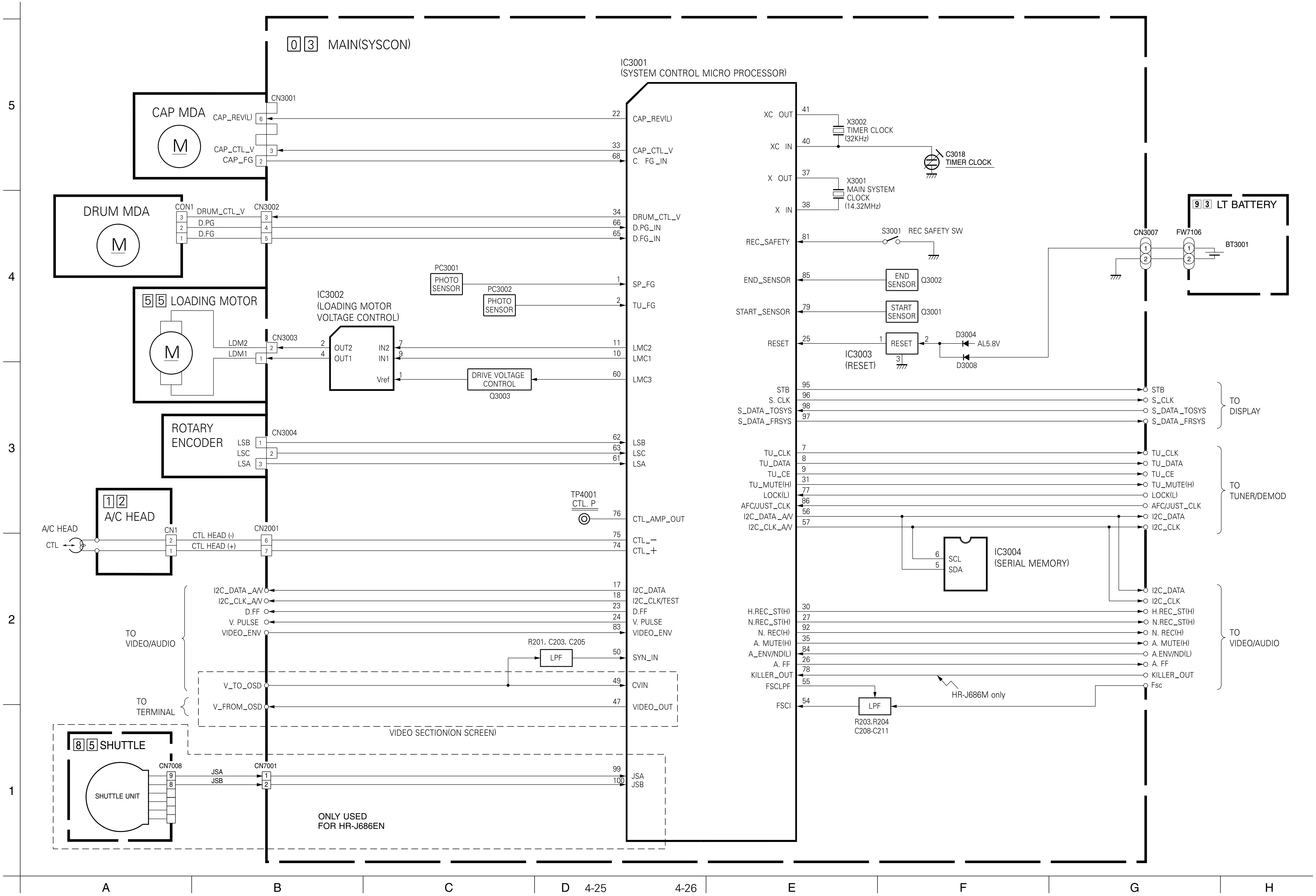
<SHUTTLE> [HR-J686EN]

MODE PIN NO.	REC	PLAY
CN7008	-	-

<LT BATTERY>

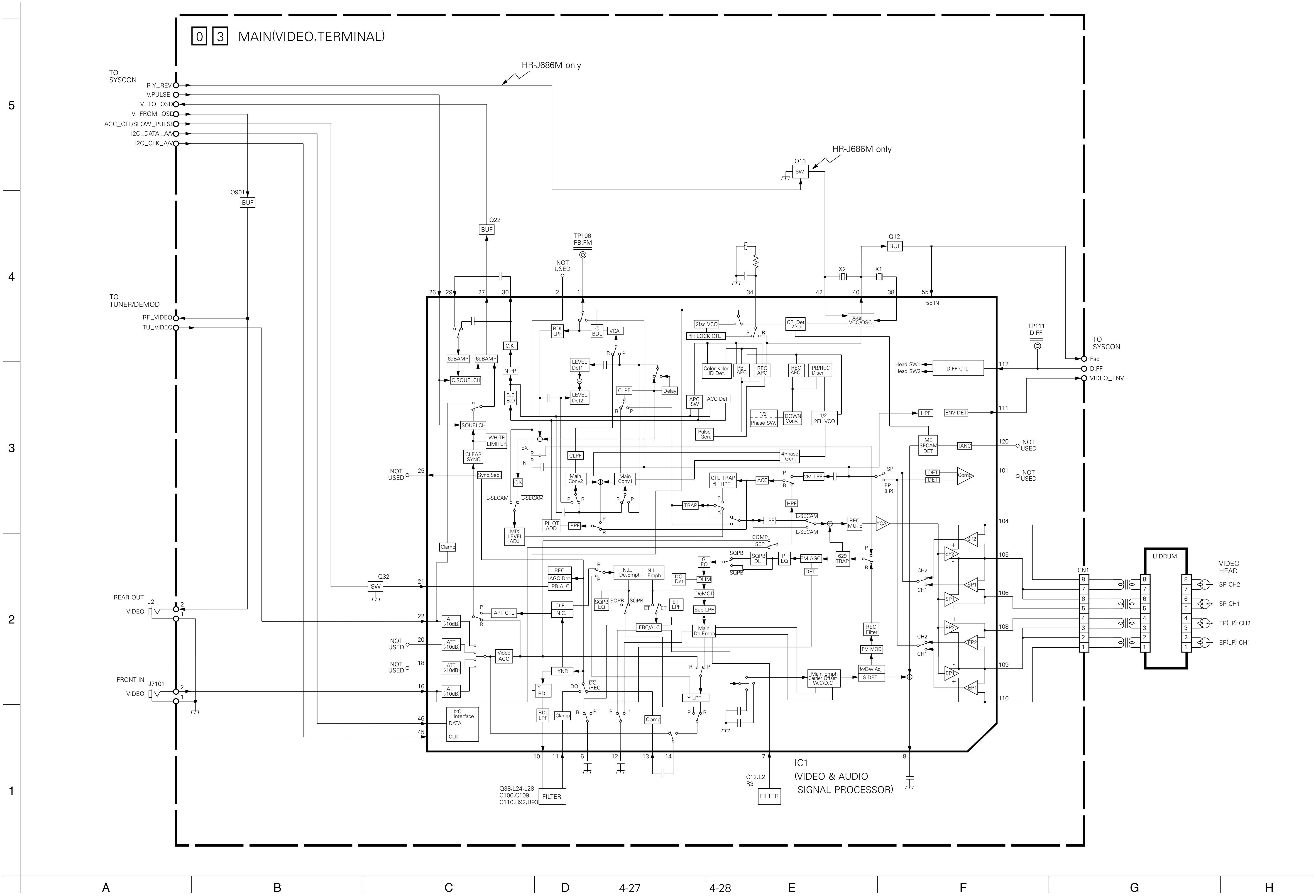
MODE PIN NO.	REC	PLAY
FW7106		
1	-	-
2	0	0

4.13 SYSTEM CONTROL BLOCK DIAGRAM

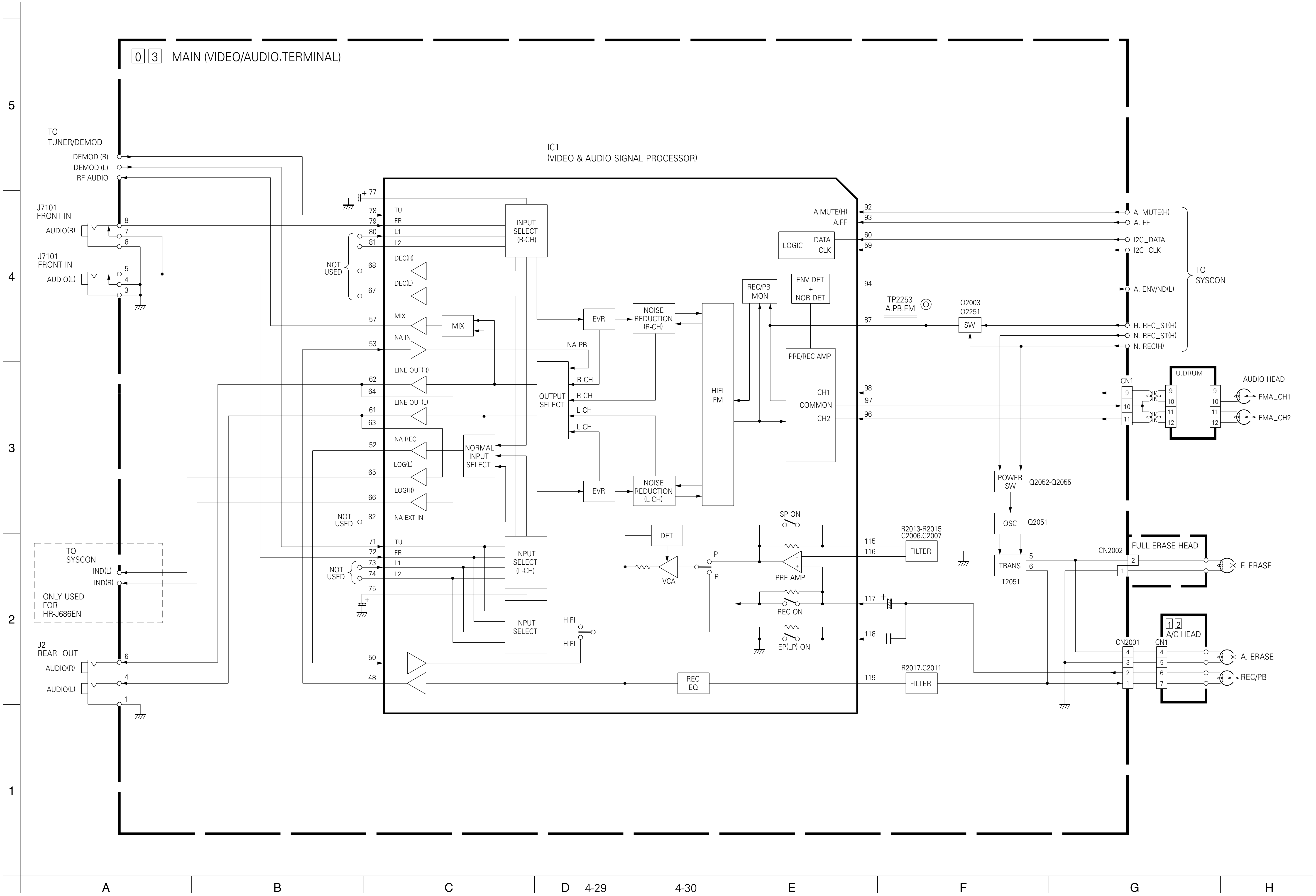


03 MAIN(SYSCON)
IC3001
(SYSTEM CONTROL MICRO PROCESSOR)
CAP MDA
M
CAP_REV(L)
CAP_CTL_V
CAP_FG
CN3001
DRUM MDA
CON1
DRUM_CTL_V
D.PG
D.FG
CN3002
55 LOADING MOTOR
LDM2
LDM1
CN3003
IC3002
(LOADING MOTOR
VOLTAGE CONTROL)
OUT2
OUT1
IN2
IN1
Vref
DRIVE VOLTAGE
CONTROL
Q3003
PC3001
PHOTO
SENSOR
PC3002
ROTARY
ENCODER
LSB
LSC
LSA
CN3004
12
A/C HEAD
A/C HEAD
CTL
CN1
CTL HEAD (-)
CTL HEAD (+)
CN2001
TP4001
CTL. P
I2C_DATA_A/V
I2C_CLK_A/V
D.FF
V. PULSE
VIDEO_ENV
TO
VIDEO/AUDIO
R201, C203, C205
LPF
V_TO_OSD
V_FROM_OSD
TO
TERMINAL
VIDEO SECTION(ON SCREEN)
85 SHUTTLE
SHUTTLE UNIT
CN7008
JSA
JSB
CN7001
ONLY USED
FOR HR-J686EN
22 CAP_REV(L)
33 CAP_CTL_V
68 C. FG_IN
34 DRUM_CTL_V
66 D.PG_IN
65 D.FG_IN
1 SP_FG
2 TU_FG
11 LMC2
10 LMC1
60 LMC3
62 LSB
63 LSC
61 LSA
76 CTL_AMP_OUT
75 CTL_−
74 CTL_+
17 I2C_DATA
18 I2C_CLK/TEST
23 D.FF
24 V. PULSE
83 VIDEO_ENV
50 SYN_IN
49 CVIN
47 VIDEO_OUT
99 JSA
100 JSB
XC OUT 41
XC IN 40
X OUT 37
X IN 38
X3002
TIMER CLOCK
(32KHz)
C3018
TIMER CLOCK
X3001
MAIN SYSTEM
CLOCK
(14.32MHz)
REC_SAFETY 81
S3001 REC SAFETY SW
END_SENSOR 85
END
SENSOR
Q3002
START_SENSOR 79
START
SENSOR
Q3001
RESET 25
RESET
IC3003
(RESET)
D3004
AL5.8V
D3008
93 LT BATTERY
CN3007
FW7106
BT3001
STB 95
S. CLK 96
S_DATA_TOSYS 98
S_DATA_FRSYS 97
STB
S_CLK
S_DATA_TOSYS
S_DATA_FRSYS
TO
DISPLAY
TU_CLK 7
TU_DATA 8
TU_CE 9
TU_MUTE(H) 31
LOCK(L) 77
AFC/JUST_CLK 86
I2C_DATA_A/V 56
I2C_CLK_A/V 57
TU_CLK
TU_DATA
TU_CE
TU_MUTE(H)
LOCK(L)
AFC/JUST_CLK
I2C_DATA
I2C_CLK
TO
TUNER/DEMOD
IC3004
(SERIAL MEMORY)
SCL
SDA
H.REC_ST(H) 30
N.REC_ST(H) 27
N. REC(H) 92
A. MUTE(H) 35
A_ENV/ND(L) 84
A. FF 26
KILLER_OUT 78
FSCLPF 55
FSCI 54
I2C_DATA
I2C_CLK
H.REC_ST(H)
N.REC_ST(H)
N. REC(H)
A. MUTE(H)
A.ENV/ND(L)
A. FF
KILLER_OUT
Fsc
TO
VIDEO/AUDIO
HR-J686M only
LPF
R203,R204
C208-C211
1
2
3
4
5
A
B
C
D
E
F
G
H

4.14 VIDEO BLOCK DIAGRAM


03 MAIN(VIDEO,TERMINAL)
TO SYSCON
R-Y_REV
V.PULSE
V_TO_OSD
V_FROM_OSD
AGC_CTL/SLOW_PULSE
I2C_DATA_A/V
I2C_CLK_A/V
HR-J686M only
Q901
BUF
Q22
BUF
Q13
SW
HR-J686M only
Q12
BUF
TP106
PB.FM
NOT USED
X2
X1
fsc IN
TP111
D.FF
TO SYSCON
Fsc
D.FF
VIDEO_ENV
TO TUNER/DEMOD
RF_VIDEO
TU_VIDEO
26 29 27 30 2 1 34 42 40 38 55
6dBAMP
6dBAMP
C.SQUELCH
C.K
N→P
B.E B.D
SQUELCH
WHITE LIMITER
CLEAR SYNC
Sync.Sep.
BDL LPF
C BDL
VCA
LEVEL Det1
LEVEL Det2
CLPF
Delay
EXT
INT
CLPF
Main Conv2
Main Conv1
C.K
L-SECAM
L-SECAM
PILOT ADD
BPF
MIX LEVEL ADJ
2fsc VCO
fH LOCK CTL
CR Det 2fsc
X-tal VCO/OSC
Color Killer ID Det.
PB APC
REC APC
REC AFC
PB/REC Discri
APC SW
ACC Det
1/2 Phase SW.
DOWN Conv.
1/2 2FL VCO
Pulse Gen.
4Phase Gen.
CTL TRAP fH HPF
ACC
2M LPF
HPF
TRAP
LPF
L-SECAM
L-SECAM
REC MUTE
YCA
COMP
SEP
Head SW1
Head SW2
D.FF CTL
112
HPF
ENV DET
111
ME SECAM DET
TANC
120
NOT USED
DET
DET
Comp
101
NOT USED
SP
EP (LP)
104
SP2
SP2
105
CH2
CH1
SP1
SP1
106
EP2
EP2
108
CH2
CH1
EP1
EP1
109
110
CN1
8 7 6 5 4 3 2 1
U.DRUM
VIDEO HEAD
SP CH2
SP CH1
EP(LP) CH2
EP(LP) CH1
Clamp
NOT USED
25
Q32
SW
21
REAR OUT
J2
VIDEO
22
ATT (-10dB)
NOT USED
20
ATT (-10dB)
NOT USED
18
ATT (-10dB)
FRONT IN
J7101
VIDEO
16
ATT (-10dB)
Video AGC
APT CTL
46
45
I2C Interface
DATA
CLK
REC AGC Det
PB ALC
D.E. N.C.
YNR
Y BDL
BDL LPF
Clamp
DO
DO /REC
N.L. De.Emph
N.L. Emph
SQPB EQ
SQPB
SQPB
ET
ET LPF
FBC/ALC
DO Det
DLIM
DeMOD
Sub LPF
Main De.Emph
G EQ
SQPB
SQPB DL
SQPB
P EQ
FM AGC
DET
629 TRAP
REC Filter
FM MOD
fo/Dev Adj
S-DET
Main Emph Carrier Offset W.C/D.C
Y LPF
Clamp
10 11 6 12 13 14 7 8
Q38,L24,L28 C106,C109 C110,R92,R93
FILTER
C12,L2 R3
FILTER
IC1 (VIDEO & AUDIO SIGNAL PROCESSOR)
1 2 3 4 5
A B C D E F G H

4.15 AUDIO BLOCK DIAGRAM


03 MAIN (VIDEO/AUDIO,TERMINAL)
IC1
(VIDEO & AUDIO SIGNAL PROCESSOR)
TO
TUNER/DEMOD
DEMOD (R)
DEMOD (L)
RF AUDIO
J7101
FRONT IN
AUDIO(R)
J7101
FRONT IN
AUDIO(L)
8
7
6
5
4
3
77
78 TU
79 FR
80 L1
81 L2
NOT USED
68 DEC(R)
67 DEC(L)
57 MIX
MIX
53 NA IN
NA PB
INPUT SELECT (R-CH)
EVR
NOISE REDUCTION (R-CH)
LINE OUT(R)
62
64
R CH
R CH
OUTPUT SELECT
61 LINE OUT(L)
63
L CH
L CH
52 NA REC
NORMAL INPUT SELECT
65 LOG(L)
66 LOG(R)
NOT USED
82 NA EXT IN
EVR
NOISE REDUCTION (L-CH)
HIFI FM
71 TU
72 FR
73 L1
74 L2
NOT USED
75
INPUT SELECT (L-CH)
INPUT SELECT
HIFI (overline)
HIFI
50
48
TO
SYSCON
IND(L)
IND(R)
ONLY USED
FOR
HR-J686EN
J2
REAR OUT
AUDIO(R)
AUDIO(L)
6
4
1
A.MUTE(H)
A.FF
92
93
LOGIC
DATA
CLK
60
59
REC/PB MON
ENV DET + NOR DET
94
TP2253
A.PB.FM
87
Q2003
Q2251
SW
PRE/REC AMP
CH1
COMMON
CH2
98
97
96
DET
VCA
P
R
SP ON
PRE AMP
REC ON
EP(LP) ON
115
116
117
118
119
R2013-R2015
C2006,C2007
FILTER
REC EQ
R2017,C2011
FILTER
POWER SW
Q2052-Q2055
OSC
Q2051
TRANS
T2051
5
6
A. MUTE(H)
A. FF
I2C_DATA
I2C_CLK
A. ENV/ND(L)
H. REC_ST(H)
N. REC_ST(H)
N. REC(H)
TO
SYSCON
CN1
9
10
11
U.DRUM
9
10
11
12
9
10
11
12
AUDIO HEAD
FMA_CH1
FMA_CH2
CN2002
FULL ERASE HEAD
2
1
F. ERASE
12
A/C HEAD
CN2001
CN1
4
3
2
1
4
5
6
7
A. ERASE
REC/PB
1
2
3
4
5
A
B
C
D
E
F
G
H

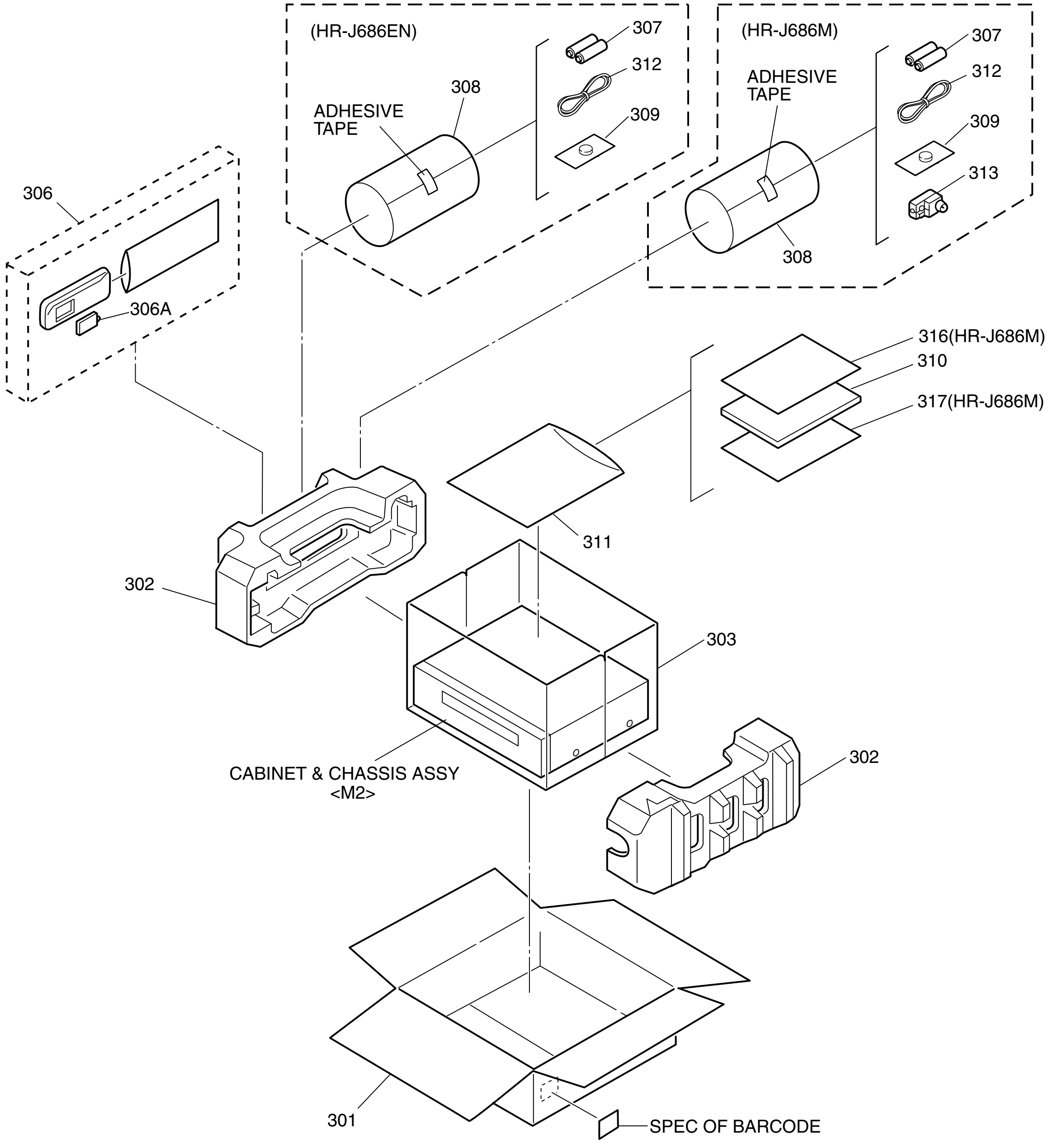
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



(HR-J686EN)
307
312
308
ADHESIVE TAPE
309
(HR-J686M)
307
312
ADHESIVE TAPE
309
313
308
306
306A
316(HR-J686M)
310
317(HR-J686M)
311
302
303
CABINET & CHASSIS ASSY <M2>
302
301
SPEC OF BARCODE

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

PACKING AND ACCESSORY ASSEMBLY <M1>

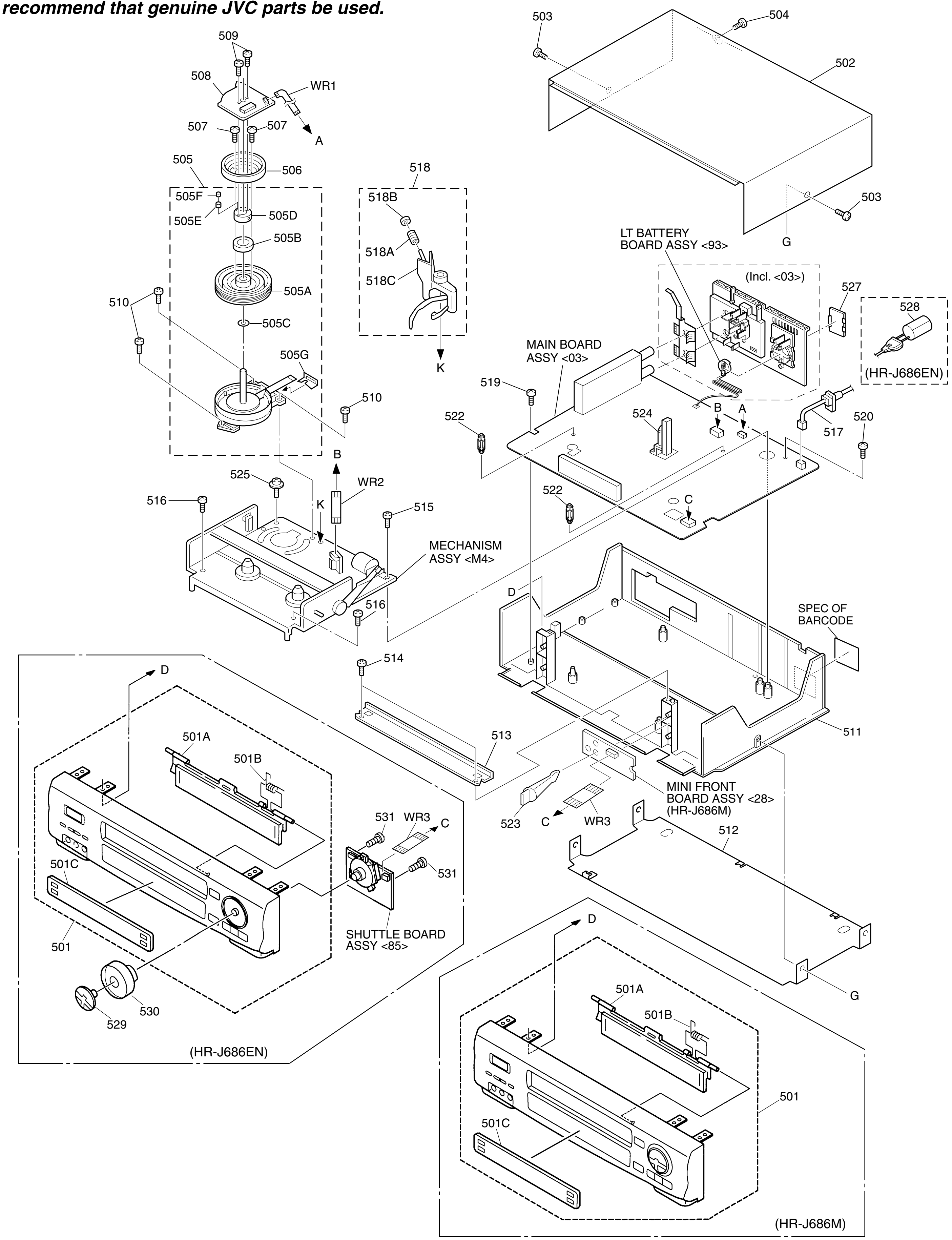
#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		301	LP30658-018A	PACKING CASE,J686M
			LP30658-020A	PACKING CASE,J686EN
		302	LP30718-001A	CUSHION ASSY
		303	PQM30021-93	POLY BAG
		306	LP20303-016B	REMOTE CONTROLLER,J686EN
			LP20878-007B	REMOTE CONTROLLER,J686M
		306A	LP40225-001A	COVER(BATTERY),J686EN
			LP40610-002A	COVER(BATTERY),J686M

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		307	–	BATTERY,X2(“AA”TYPE)
		308	QPC02202230P	POLY BAG
	⚠	309	PECA0903	LI BATTERY
	⚠	310	LPT0378-001A	INST BOOK(SP),J686EN
	⚠		LPT0375-001A	INST BOOK(PT),J686M
		311	QPC02503530P	POLY BAG
		312	PEAC0294-04	RF CABLE,J686EN
			PEAC0446-120	RF CABLE,J686M
		313	PU35613-2	MATCHING TRANSFORMER,J686M
		316	BT-53003-1	WARRANTY CARD,J686M
		317	BT-53002-1	S.CENTER LIST,J686M

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



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504
502
503
G
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WR1
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507
A
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505F
505E
505D
505B
505A
505C
505G
510
510
518
518B
518A
518C
K
LT BATTERY BOARD ASSY <93>
(Incl. <03>)
527
528
(HR-J686EN)
MAIN BOARD ASSY <03>
519
522
524
B
A
517
520
B
525
WR2
516
K
515
522
C
MECHANISM ASSY <M4>
516
D
SPEC OF BARCODE
514
D
501A
501B
513
511
MINI FRONT BOARD ASSY <28> (HR-J686M)
523
C
WR3
531
WR3
C
531
512
501C
501
SHUTTLE BOARD ASSY <85>
530
529
(HR-J686EN)
D
G
501A
501B
501
501C
(HR-J686M)

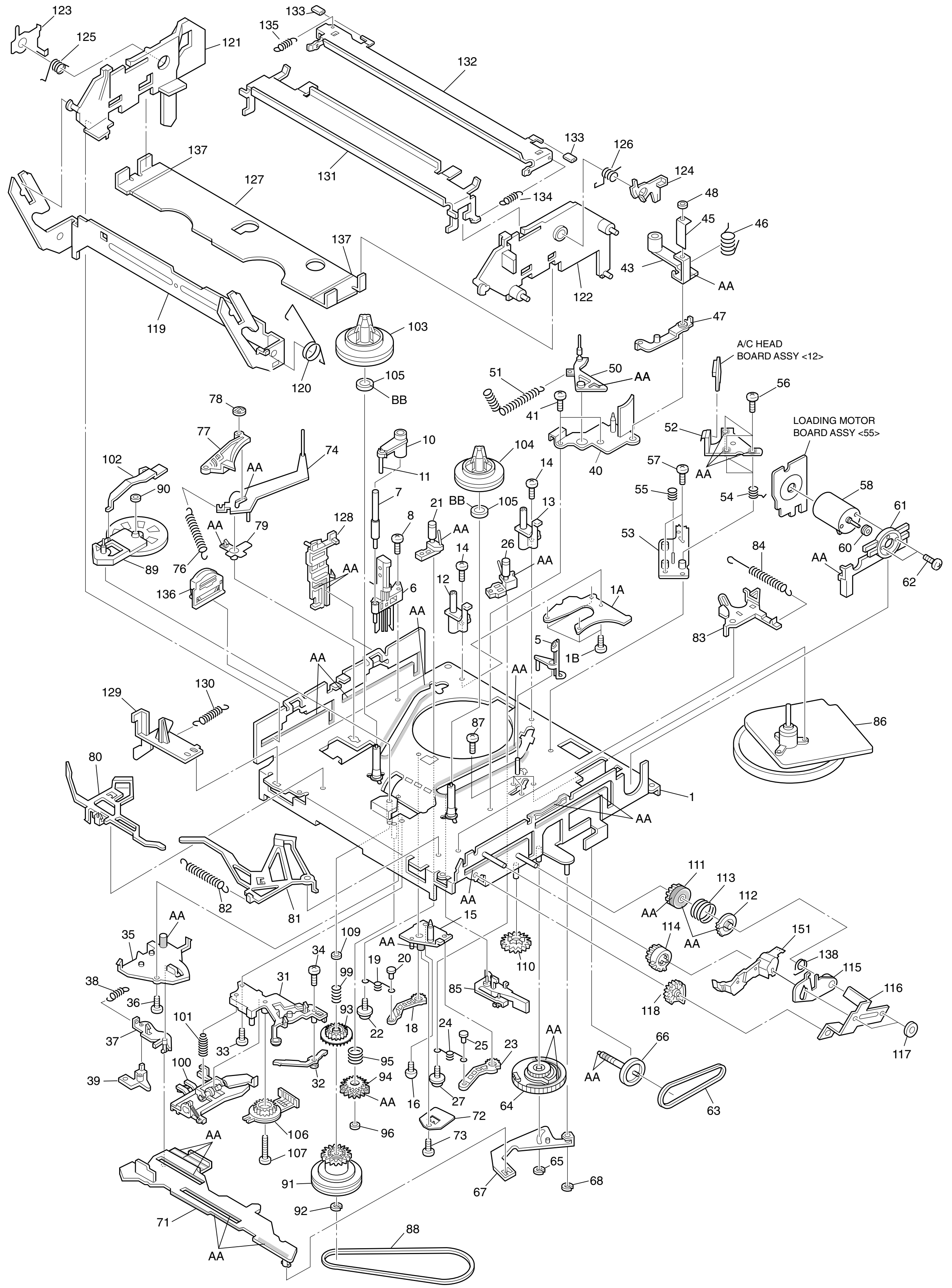
****

CABINET AND CHASSIS ASSEMBLY <M2>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	⚠	501	LP10289-034B	FRONT PANEL ASSY,J686EN
	⚠		LP10289-033C	FRONT PANEL ASSY,J686M
		501A	LP20868-007A	CASSETTE DOOR
		501B	PQ46448	TORSION SPRING
		501C	LP20869-043A	DISPLAY WINDOW,J686M
			LP20869-046A	DISPLAY WINDOW,J686EN
	⚠	502	LP10013-027C	TOP COVER
		503	QYTDSF3010M	SCREW,X2 TOP COVER(SIDE)
		504	QYTDSF3010M	SCREW,TOP COVER(REAR)
		505	LP20617-001A	DRUM SUB ASSY,J686M
			LP20617-002A	DRUM SUB ASSY,J686EN
		505A	LP20616-001A	UPPER DRUM ASSY,J686M
			LP20616-002A	UPPER DRUM ASSY,J686EN
		505B	PDM4439	CAP
		505C	PDM4444-19-2	WASHER
		505D	LP40572-001A	COLLAR ASSY
		505E	LP40323-001A	CONTACT
		505F	LP30004-014A	COMPRESSION SPRING
		505G	LP40174-001B	FPC PLATE
		506	PDZ0179-1-4	ROTOR ASSY
		507	QYSPSP3006Z	SCREW,X2
	⚠	508	QAR0119-001	STATOR ASSY
		509	QYSPSPH2606Z	SCREW,X2
		510	QYTDST2610Z	SCREW,X3 DRUM
	⚠	511	LP10108-009C	BOTTOM CHASSIS
	⚠	512	LP10014-001B	BOTTOM COVER
		513	LP30312-001B	BRACKET(CHASSIS)
		514	QYTDSF3010Z	SCREW,X2
		515	QYTDSF4012Z	SCREW,MECHA
		516	QYTDSF3010Z	SCREW,X2 MECHA
	⚠	517	QMPR130-170-JC	POWER CORD,J686EN
	⚠		QMP73K0-170	POWER CORD,J686M
		518	LP40369-001D	CLEANER ASSY
		518A	PQ46418-1-2	CLEANER ROLLER
		518B	PQ46419-1-2	CLEANER
		518C	LP30407-001D	CLEANER ARM
		519	QYTDSF3010Z	SCREW,MAIN
		520	DPSF3010Z	SCREW,MAIN
		522	LP40226-001A	PC SUPPORT,X2
		523	LP40628-001B	PC SUPPORT,FRONT,J686M
		524	LP40253-001B	STOPPER
		525	PQ40413	SPECIAL SCREW,MECHA
		527	LP30336-001A	CAP,LT.BATTERY
		528	PM30137	POLY BAG(POWER PLUG),J686EN
		529	LP30652-002A	KNOB(SHUTTLE),J686EN
		530	LP30651-003A	KNOB(JOG),J686EN
		531	QYTDSF2608Z	SCREW,X2,J686EN
		WR1	QUQ212-0518CG	FFC WIRE,DRUM CN3002
		WR2	WJT0005-002A	E-CARD WIRE,A/C HEAD CN2001
		WR3	QUQ112-0914CG	FFC WIRE,FRONT CN7001

# ⚠ REF No. PART No. PART NAME, DESCRIPTION

5.3 MECHANISM ASSEMBLY <M4>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137
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AA
122
119
120
103
105
BB
47
A/C HEAD
BOARD ASSY <12>
51
50
AA
56
78
41
52
LOADING MOTOR
BOARD ASSY <55>
77
10
104
74
102
AA
11
14
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57
AA
90
7
21
BB
105
13
55
54
58
61
AA
79
128
8
AA
53
60
76
89
14
26
AA
84
AA
AA
62
136
6
12
1A
AA
83
5
1B
AA
AA
129
130
86
87
80
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AA

Classifi-cation	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

****

MECHANISM ASSEMBLY <M4>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	LP20821-002F	MAIN DECK ASSY
1A	LP40275-004B	PLATE(SUPPLY)
1B	QYTDST2605Z	SCREW,X4 PLATE(SUPPLY)
5	LP30492-002B	GIDE POLE GUARD
6	NAH0001-001	FULL ERASE HEAD
7	LP40098-001B	GUIDE POLE(SUPPLY)
8	QYTDST2608Z	SCREW,FE HEAD
10	LP30459-002A	TENSION STUD BASE
11	LP40367-002A	TENSION STUD
12	LP30409-002C	UV CATCHER 2(SUPPLY)
13	LP30409-002C	UV CATCHER 2(TAKE UP)
14	QYTPST2606Z	SCREW,X2 UV CATCHER
15	LP30223-003C	LOADING ARM GEA SHAFT
16	QYTDST2606Z	SCREW
18	LP30224-001A	LOADING ARM GEAR(SPPLY)
19	LP40099-001A	TORSION ARM
20	LP40100-001A	PIN
21	LP40101-006A	POLE BASE ASSY(SUPPLY)
22	QYSPSTG2606Z	SCREW
23	LP40103-002B	LOADING ARM GEAR(TAKE UP)
24	LP40099-001A	TORSION ARM
25	LP40100-001A	PIN
26	LP40104-006A	POLE BASE ASSY(TAKE UP)
27	QYSPSTG2606Z	SCREW
31	LP20233-004B	ROTARY ENCODER GUIDE
32	LP30499-001C	BRAKE LEVER
33	QYTPST2606Z	SCREW
34	QYTPST2608Z	SCREW
35	LP30226-004D	CONTROL PLATE GUIDE
36	QYTPST2605Z	SCREW
37	LP30249-003B	TAKE UP LEVER
38	LP30003-006A	TENSION SPRING
39	LP40119-002A	TAKE UP HEAD
40	LP20234-004B	LID GUIDE
41	QYTDST2606Z	SCREW,X2
43	LP40105-002A	PINCH ROLLER ARM ASSY
45	LP40478-001A	PINCH ROLLER SHEET2
46	LP40148-002A	TORSION SPRING
47	LP40149-001C	PRESS LEVER ASSY
48	LP30016-002A	SLIT WASHER
50	LP40106-002E	GUIDE ARM ASSY
51	LP40134-001C	TENSION SPRING
52	QAH0010-004	AC HEAD
53	LP30228-001A	HEAD BASE
54	LP30004-013A	COMPRESSION SPRING,X3
55	LP40236-001A	COMPRESSION SPRING
56	LP40213-002B	SPECIAL SCREW,X3
57	QYTDST2608Z	SCREW,X2
58	QAR0023-001	LOADING MOTOR
60	PQ43546-1-2	MOTOR PULLEY
61	LP30230-001B	MOTOR GUIDE
62	QYTPSP3003Z	SCREW,X2
63	LP30005-003A	BELT,LOADING MOTOR
64	LP20791-002C	CONTROL CAM
65	PQM30017-24	SLIT WASHER
66	LP40120-001A	WORM GEAR
67	LP40107-002A	LINK LEVER ASSY
68	PQM30017-24	SLIT WASHER
71	LP10201-003C	CONTROL PLATE
72	LP40379-001B	CTL BRACKET(1)
73	QYTDSF2608M	SCREW
74	LP40108-002A	TENSION ARM ASSY
76	LP30003-010A	TENSION SPRING
77	LP40109-003D	TENSION BRAKE ASSY
78	PQ46302-1-3	ADJUST PIN
79	LP30232-002A	TENSION ARM BEARING
80	LP40532-008A	MAIN BRAKE ASSY (SUPPLY)
81	LP40111-011A	MAIN BRAKE ASSY (TAKE UP)
82	LP30003-026A	TENSION SPRING
83	LP40112-001F	SUB BRAKE ASSY(TAKE UP)
84	LP40357-002A	TENSION SPRING
85	LP40461-001A	CAPSTAN BRAKE ASSY
86	QAR0087-004	CAPSTAN MOTOR
87	QYTDSF2606M	SCREW,X3
88	LP30005-007A	BELT,CAPSTAN MOTOR
89	LP40114-008A	IDLER ARM ASSY
90	LP30016-001A	SLIT WASHER
91	LP40593-001A	CLUTCH UNIT 3
92	PQM30017-47	SLIT WASHER
93	LP40446-002B	CLUTCH GEAR 1
94	LP40442-001A	DIRECT GEAR
95	LP40483-002A	COMPRESSION SPRING
96	LP30016-001A	SLIT WASHER
99	LP40554-001A	COMPRESSION SPRING
100	LP40484-001J	CHANGE LEVER ASSY
101	LP40512-002B	COMPRESSION SPRING
102	LP30236-002B	IDLER LEVER
103	LP20237-001B	REEL DISK (SUPPLY)
104	LP20238-001B	REEL DISK (TAKE UP)
105	LP30017-015A	SPACER
106	QSW0554-003	ROTARY ENCODER
107	QYTPST2620Z	SCREW,ROTARY ENCODER
109	LP30017-019A	SPACER,C.GEAR 1
110	LP30237-002B	CASSETTE GEAR
111	LP30239-002G	LIMIT GEAR(1)
112	LP30240-002G	LIMIT GEAR(2)
113	LP40136-001E	TORSION SPRING
114	LP30242-002A	RELAY GEAR
115	LP30339-002E	OPENER GUIDE
116	LP40214-001B	C.H.BRACKET
117	PQM30017-47	SLIT WASHER,X2
118	LP30243-001D	DRIVE GEAR
119	LP20240-001F	DRIVE ARM
120	LP40137-001A	TORSION SPRING
121	LP10081-002L	SIDE HOLDER(L)
122	LP10082-002M	SIDE HOLDER(R)
123	LP30255-006A	LOCK LEVER(L)
124	LP30256-001H	LOCK LEVER(R)
125	LP40168-001A	TORSION SPRING(L)
126	LP40218-001B	TORSION SPRING(R)
127	LP30257-001G	CASSETTE HOLDER
128	LP30244-002G	GUIDE RAIL
129	LP30245-002E	REC SAFETY LEVER
130	LP30003-004A	TENSION SPRING
131	LP20578-001C	TOP GUIDE
132	LP30500-001C	HOLD PLATE
133	LP40450-003A	PAD,X2 HOLD PLATE
134	LP30003-025B	TENSION SPRING
135	LP30003-024A	TENSION SPRING
136	LP40481-003A	ROLLER CAM ASSY
137	LP30019-014A	PAD,X2 CASSETTE HOLDER
138	LP40545-001A	TORSION SPRING,OPENER GUIDE
151	LP20324-003A	DOOR OPENER

5.4 ELECTRICAL PARTS LIST

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MAIN BOARD ASSEMBLY <03>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW1	LPA10088-18C1	MAIN BOARD ASSY,J686EN
	LPA10088-14D1	MAIN BOARD ASSY,J686M
IC1	JCP8020-MSD-2	IC
IC3001	MN101D02GJK	IC,J686M
	MN101D02GJT	IC,J686EN
IC3002	BA6956AN	IC
IC3003	S-80823ANUP-W	IC
	or R3111H231A	IC
IC3004	M24C02-BN6	IC
	or AT24C02-10PC	IC
	or 24LC02B/P	IC
IC5301	LA5613	IC
IC6501	UPC1854AGT	IC
IC7001	M35500BGP	IC
	or M35500AGP	IC
IC7002	GP1U291Q	IR DETECT UNIT
	or PNA4652M00YC	IR DETECT UNIT
	or PIC-28143LJ	IR DETECT UNIT
Q1	2SC4081/S/-X	TRANSISTOR,J686EN
Q2	2SC4081/S/-X	TRANSISTOR,J686EN
Q3	2SC4081/S/-X	TRANSISTOR,J686EN
Q4	2SC4081/S/-X	TRANSISTOR,J686EN
Q12	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q13	DTC144WU	TRANSISTOR,J686M
	or PDTC144WU	TRANSISTOR,J686M
	or RN1309	TRANSISTOR,J686M
	or UN521E	TRANSISTOR,J686M
Q22	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q25	DTC144WU	TRANSISTOR,J686M
	or PDTC144WU	TRANSISTOR,J686M
	or RN1309	TRANSISTOR,J686M
	or UN521E	TRANSISTOR,J686M
Q27	DTC144WU	TRANSISTOR,J686M
	or PDTC144WU	TRANSISTOR,J686M
	or RN1309	TRANSISTOR,J686M
	or UN521E	TRANSISTOR,J686M
Q32	DTC144WU	TRANSISTOR
	or PDTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q38	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q901	2SA1576A/QRS/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q2001	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2002	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2003	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
	or PDTA144WU	TRANSISTOR
Q2051	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2052	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q2053	DTC144WU	TRANSISTOR
	or PDTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2054	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q2055	DTC144WU	TRANSISTOR
	or PDTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2251	DTA144WU	TRANSISTOR
	or PDTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q3001	PTZ-NV16A	IC(PHOTO COUPLER)
Q3002	PTZ-NV16A	IC(PHOTO COUPLER)
Q3003	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q3004	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q4001	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
	or PDTC114EU	TRANSISTOR
Q4002	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q5101	2SK2632-CB14	POWER MOS FET
	or 2SK2632	POWER MOS FET
	or 2SK2129	POWER MOS FET
	or 2SK2129-LT	POWER MOS FET
Q5102	2SD2144S/UV/-T	TRANSISTOR
Q6030	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
Q6501	DTC143TU	TRANSISTOR
Q6502	DTC143TU	TRANSISTOR
Q6551	2SC1740S/QRS/-T	TRANSISTOR
	or 2SC3199/YG/-T	TRANSISTOR
D1	1SS133	DIODE
	or 1SS270A	DIODE
D2	1SS133	DIODE
	or 1SS270A	DIODE
D4	1SS133	DIODE
	or 1SS270A	DIODE
D5	1SS133	DIODE
	or 1SS270A	DIODE
D2201	11ES2	DIODE
	or 1A3G	DIODE
D2202	MTZJ9.1B	ZENER DIODE

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		D3001	LNB2301L01VI	LE DIODE	
		D3002	1SS133	DIODE	
			or 1SS270A	DIODE	
		D3004	11ES2	DIODE	
			or 1A3G	DIODE	
		D3005	11ES2	DIODE	
			or 1A3G	DIODE	
		D3006	RD33ES/B2/-T2	ZENER DIODE	
			or MTZJ33B	ZENER DIODE	
	⚠	D3008	RB721Q-40-T2	SB DIODE	
		D3009	DA204U	DIODE	
		D3013	DA204U	DIODE	
		D3015	DAN202U	DIODE	
		D4003	1SS133	DIODE	
			or 1SS270A	DIODE	
		D5001	S1WB/A/60-4102	BRIDGE DIODE	
			or S1WB(A)60F4072X	BRIDGE DIODE	
			or S1WB/A/60-X	BRIDGE DIODE	
		D5101	AU01	FR DIODE	
			or ERA18-04-T2	FR DIODE	
			or 10ELS4	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
		D5102	AU01	FR DIODE	
			or ERA18-04-T2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
			or 10ELS4	FR DIODE	
		D5103	1SS133	DIODE	
			or 1SS270A	DIODE	
		D5105	1SS133	DIODE	
			or 1SS270A	DIODE	
		D5201	AK04	DIODE,J686EN	
			AU01Z	FR DIODE,J686M	
			or 1S4	SB DIODE,J686EN	
			or 11EQS04	SB DIODE,J686EN	
			or 10ELS2	FR DIODE,J686M	
		D5203	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
			or 10ELS2	FR DIODE	
			or PG104RS	FR DIODE	
		D5204	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
			or 10ELS2	FR DIODE	
			or PG104RS	FR DIODE	
		D5205	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or PG104RS	FR DIODE	
			or 10ELS2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
	⚠	D5207	AK04	DIODE	
	⚠		or 11EQS04	SB DIODE	
	⚠		or 1S4	SB DIODE	
		D5210	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or PG104RS	FR DIODE	
			or 10ELS2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
		D5211	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
			or PG104RS	FR DIODE	
			or 10ELS2	FR DIODE	
		D5301	MTZJ15A	ZENER DIODE	
			or RD15ES/B1/-T2	ZENER DIODE	
		D5302	MTZJ6.8A	ZENER DIODE	
			or RD6.8ES/B1/-T2	ZENER DIODE	
		D5303	MTZJ27C	ZENER DIODE	
			or RD27ES/B3/-T2	ZENER DIODE	
		D5304	1SS133	DIODE	
			or 1SS270A	DIODE	
		D6002	HZ30-2L-T2	ZENER DIODE	
			or HZ30-2LTD	Z DIODE (M)	
		D6551	MTZJ10B	ZENER DIODE	
		D7002	RD9.1ES/B2/-T2	ZENER DIODE	
			or UZ9.1BSB	ZENER DIODE	
			or MTZJ9.1B	ZENER DIODE	
		R1	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R3	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
		R6	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R7	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R8	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R9	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R12	QRE141J-0R0Y	RESISTOR	0Ω,1/4W
		R21	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
		R22	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
		R37	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R42	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R44	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
		R45	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R46	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R49	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
		R66	QRE141J-104Y	RESISTOR	100kΩ,1/4W
		R67	QRE141J-103Y	RESISTOR,J686M	10kΩ,1/4W
		R77	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R90	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R92	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R93	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R104	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R201	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R202	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R203	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R204	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R901	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R904	QRE123J-331X	RESISTOR	330Ω,1/2W
		R905	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R912	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R2001	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2003	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2004	NRSA02J-332X	MG RESISTOR,J686M	3.3kΩ,1/10W
		R2005	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2006	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2009	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R2013	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2014	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R2015	NRSA02J-181X	MG RESISTOR,J686M	180Ω,1/10W
			NRSA02J-121X	MG RESISTOR,J686EN	120Ω,1/10W
		R2016	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2017	NRSA02J-153X	MG RESISTOR,J686M	15kΩ,1/10W
			NRSA02J-223X	MG RESISTOR,J686EN	22kΩ,1/10W

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R2053	NRSA02J-472X	MG RESISTOR,J686M	4.7kΩ,1/10W
		NRSA02J-682X	MG RESISTOR,J686EN	6.8kΩ,1/10W
	R2054	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
	R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
	R2056	NRSA02J-820X	MG RESISTOR	82Ω,1/10W
	R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
	R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
	R2201	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
	R2202	NRSA02J-222X	MG RESISTOR,J686EN	2.2kΩ,1/10W
	R2203	NRSA02J-222X	MG RESISTOR,J686EN	2.2kΩ,1/10W
	R2204	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R2205	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R2206	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R2207	NRSA02J-332X	MG RESISTOR,J686M	3.3kΩ,1/10W
	R2217	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R2218	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
	R2223	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
	R2232	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
	R2251	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R2601	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R3001	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3002	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3005	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3007	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3008	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3013	NRSA02J-102X	MG RESISTOR,J686M	1kΩ,1/10W
	R3015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3016	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3017	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R3018	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R3019	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R3020	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R3021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3026	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3027	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3029	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3031	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3035	QRE141J-102Y	RESISTOR	1kΩ,1/4W
	R3043	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3046	QRE141J-102Y	RESISTOR	1kΩ,1/4W
	R3060	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3078	NRSA02J-102X	MG RESISTOR,J686M	1kΩ,1/10W
	R3079	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3081	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3083	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3084	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3085	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3086	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3088	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R3089	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R3090	QRE141J-102Y	RESISTOR	1kΩ,1/4W
	R3092	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3094	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3096	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3097	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	R3098	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3099	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R3100	NRSA02J-102X	MG RESISTOR,J686EN	1kΩ,1/10W
	R3201	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3202	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3203	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3204	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R3205	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
	R3206	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3207	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3208	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3209	QRE141J-181Y	RESISTOR	180Ω,1/4W
	R3210	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
	R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
	R3212	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
	R3213	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
	R3214	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
	R3215	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
	R3216	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
	R3217	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
	R3219	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3220	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3223	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
	R3224	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R3226	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3227	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3232	QRE141J-104Y	RESISTOR	100kΩ,1/4W
	R3233	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3234	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
⚠	R3235	QRE141J-102Y	RESISTOR	1kΩ,1/4W
	R3237	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
	R3238	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
	R3240	NRSA02J-103X	MG RESISTOR,J686EN	10kΩ,1/10W
	R3241	NRSA02J-103X	MG RESISTOR,J686EN	10kΩ,1/10W
	R4001	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
	R4002	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
	R4003	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R4006	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R4010	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R4011	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R4012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
	R4018	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R4019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R4020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R4021	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R4022	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R4024	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R4025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R5101	QRE141J-224Y	RESISTOR	220kΩ,1/4W
	R5102	QRE141J-224Y	RESISTOR	220kΩ,1/4W
	R5103	QRE141J-683Y	RESISTOR	68kΩ,1/4W
	R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W
	R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W
	R5107	QRE121J-331Y	RESISTOR	330Ω,1/2W
	R5108	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R5109	QRE141J-681Y	RESISTOR	680Ω,1/4W
	R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
	R5111	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
	R5112	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
	R5301	QRE141J-1R0Y	RESISTOR,J686EN	1Ω,1/4W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	⚠	R5304	QRZ9005-221X	FUSI RESISTOR	220Ω,1/4W
		R5305	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5306	NRSA02J-563X	MG RESISTOR	56kΩ,1/10W
		R5327	NRSA02J-303X	MG RESISTOR	30kΩ,1/10W
		R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6030	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R6032	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R6033	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R6053	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6501	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6502	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
		R6503	NRSA02J-124X	MG RESISTOR	120kΩ,1/10W
		R6504	NRSA02J-302X	MG RESISTOR	3kΩ,1/10W
		R6505	NRSA02J-512X	MG RESISTOR	5.1kΩ,1/10W
		R6506	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R6507	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R6508	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R6509	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R6510	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R6511	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R6514	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6515	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6551	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R6552	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7001	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7002	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7003	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7004	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7005	QRE141J-103Y	RESISTOR,J686EN	10kΩ,1/4W
		R7006	NRSA02J-103X	MG RESISTOR,J686EN	10kΩ,1/10W
		R7007	NRSA02J-103X	MG RESISTOR,J686EN	10kΩ,1/10W
		R7008	NRSA02J-103X	MG RESISTOR,J686EN	10kΩ,1/10W
		R7013	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7017	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R7020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7021	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7022	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R7023	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7024	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R7025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R7030	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7031	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7032	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R7033	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7034	NRSA02J-0R0X	MG RESISTOR,J686M	0Ω,1/10W
			NRSA02J-272X	MG RESISTOR,J686EN	2.7kΩ,1/10W
		R7035	NRSA02J-472X	MG RESISTOR,J686EN	4.7kΩ,1/10W
		R7036	NRSA02J-682X	MG RESISTOR,J686EN	6.8kΩ,1/10W
		R7037	NRSA02J-563X	MG RESISTOR	56kΩ,1/10W
		C1	NCB21HK-103X	CAPACITOR,J686EN	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,J686M	1μF,16V
		C2	NCB21HK-103X	CAPACITOR,J686EN	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,J686M	1μF,16V
		C3	NCB21HK-103X	CAPACITOR,J686EN	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,J686M	1μF,16V
		C4	NCB21HK-103X	CAPACITOR,J686EN	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,J686M	1μF,16V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C5	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C6	NCB11EK-104X	CAPACITOR	0.1μF,25V
		C7	NCB21HK-471X	CAPACITOR	470pF,50V
		C8	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C9	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C10	NDC21HJ-151X	CAPACITOR	150pF,50V
		C11	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C12	NDC21HJ-330X	CAPACITOR	33pF,50V
		C14	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C15	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C16	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C17	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C19	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C20	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C21	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C22	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C23	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C24	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C25	NDC21HJ-5R0X	CAPACITOR	5pF,50V
		C26	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C27	NCB21HK-223X	CAPACITOR	0.022μF,50V
		C28	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C29	NCB21EK-104X	CAPACITOR,J686EN	0.1μF,25V
			NCB21HK-683X	CAPACITOR,J686M	0.068μF,50V
		C30	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
		C31	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C32	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C33	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C34	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C35	NCB21EK-103X	CAPACITOR,J686M	0.01μF,25V
			NCB21EK-333X	CAPACITOR,J686EN	0.033μF,25V
		C36	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C37	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C38	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C39	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C40	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C51	QERF1HM-105	E CAPACITOR	1μF,50V
		C54	NCB21EK-103X	CAPACITOR	0.01μF,25V
		C55	NCB21HK-473X	CAPACITOR,J686M	0.047μF,50V
		C62	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C64	NDC21HJ-150X	CAPACITOR	15pF,50V
		C69	NCB21HK-471X	CAPACITOR,J686EN	470pF,50V
		C70	NCB21HK-471X	CAPACITOR,J686EN	470pF,50V
		C81	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C106	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C109	NCB21HK-223X	CAPACITOR	0.022μF,50V
			NCB21CK-224X	CAPACITOR	0.22μF,16V
		C110	NCB21HK-331X	CAPACITOR	330pF,50V
		C201	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C202	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C203	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C205	NDC21HJ-101X	CAPACITOR	100pF,50V
		C207	NCF21CZ-105X	CAPACITOR	1μF,16V
		C208	NDC21HJ-101X	CAPACITOR	100pF,50V
		C209	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C210	NCB21HK-222X	CAPACITOR	0.0022μF,50V
		C211	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C901	QETN0JM-477	E CAPACITOR	470μF,6.3V
		C903	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C904	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C2001	QEKJ1EM-475	E CAPACITOR	4.7μF,25V

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C2002	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2003	QEKC0JM-476	E CAPACITOR	47µF,6.3V
	C2005	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2006	NCB21HK-123X	CAPACITOR	0.012µF,50V
	C2007	QEKJ1CM-226	E CAPACITOR	22µF,16V
	C2008	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2009	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C2010	NCB21HK-222X	CAPACITOR	0.0022µF,50V
	C2011	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2012	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2051	QCBB1HJ-331	CAPACITOR	330pF,50V
	C2052	QFV91HJ-823	F CAPACITOR	0.082µF,50V
	C2053	NCB21HK-472X	CAPACITOR	0.0047µF,50V
	C2054	NCB21HK-223X	CAPACITOR	0.022µF,50V
	C2055	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2201	NCB21CK-104X	CAPACITOR	0.1µF,16V
	C2202	NCB21EK-333X	CAPACITOR	0.033µF,25V
	C2203	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2204	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C2205	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C2206	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2207	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C2208	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2209	QEKJ1HM-104	E CAPACITOR,J686EN	0.1µF,50V
	C2210	QEKJ1HM-104	E CAPACITOR,J686EN	0.1µF,50V
	C2211	QEKJ1HM-474	E CAPACITOR,J686EN	0.47µF,50V
	C2212	QEKJ1HM-474	E CAPACITOR,J686EN	0.47µF,50V
	C2215	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2217	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2219	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2220	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2221	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2222	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
	C2223	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
	C2224	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2225	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2226	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2227	NCB21CK-104X	CAPACITOR	0.1µF,16V
	C2251	QEKC0JM-476	E CAPACITOR	47µF,6.3V
	C2252	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2253	NCB21CK-104X	CAPACITOR	0.1µF,16V
	C2254	NCB21CK-104X	CAPACITOR	0.1µF,16V
	C3001	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C3002	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C3003	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C3008	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3013	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C3016	NDC21HJ-180X	CAPACITOR	18pF,50V
	C3017	NDC21HJ-220X	CAPACITOR	22pF,50V
	C3018	QAT3725-300Z	TRIM CAPACITOR,TIMER CLOCK	
	C3019	NDC21HJ-100X	CAPACITOR	10pF,50V
	C3020	NDC21HJ-180X	CAPACITOR	18pF,50V
	C3022	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3023	NCF21CZ-105X	CAPACITOR	1µF,16V
	C3024	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C3025	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3028	QETN0JM-108	E CAPACITOR	1000µF,6.3V
	C3029	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3030	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
	C3035	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C3036	QERF0JM-107	E CAPACITOR	100µF,6.3V

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C3048	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3049	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3050	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3052	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3053	QDYB1CM-103Y	CAPACITOR	0.01µF,16V
	C3054	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C4001	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C4002	QEKJ1HM-224	E CAPACITOR	0.22µF,50V
	C4004	QERF0JM-336	E CAPACITOR	33µF,6.3V
	C4006	NCB21EK-563X	CAPACITOR	0.056µF,25V
	C4007	NCB21HJ-103X	CAPACITOR	0.01µF,50V
	C4008	QERF0JM-476	E CAPACITOR	47µF,6.3V
	C4009	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C4010	QERF0JM-476	E CAPACITOR	47µF,6.3V
	C4011	NCB21CK-224X	CAPACITOR	0.22µF,16V
	C4012	NDC21HJ-471X	CAPACITOR	470pF,50V
	C4014	NDC21HJ-101X	CAPACITOR	100pF,50V
	C4015	NDC21HJ-101X	CAPACITOR	100pF,50V
	C4016	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C4017	NCB21HJ-103X	CAPACITOR	0.01µF,50V
	C4019	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C4022	NDC21HJ-101X	CAPACITOR	100pF,50V
⚠	C5001	QFZ9073-683	F CAPACITOR	0.068µF,250V
⚠	C5004	QCZ9071-222	CAPACITOR	0.0022µF,250V
	C5006	QEZ0374-826	E CAPACITOR	82µF,400V
	C5101	QCZ0212-472	CAPACITOR	0.0047µF,1kV
	C5102	QCZ0302-330Z	CAPACITOR	33pF,1kV
	C5104	QETN1HM-105	E CAPACITOR	1µF,50V
	C5105	QFN31HJ-183	F CAPACITOR	0.018µF,50V
	C5106	QCBB1HJ-271	CAPACITOR	270pF,50V
	C5107	QFV91HJ-104	F CAPACITOR	0.1µF,50V
	C5201	QEMU0JM-227	E CAPACITOR	220µF,6.3V
	C5202	QEMT1CM-827	E CAPACITOR	820µF,16V
	C5203	QEMT1AM-687	E CAPACITOR	680µF,10V
	C5204	QETN2AM-475	E CAPACITOR	4.7µF,100V
	C5205	QETN1HM-106	E CAPACITOR	10µF,50V
	C5207	QETN1CM-227	E CAPACITOR	220µF,16V
	C5208	QETN1AM-227	E CAPACITOR	220µF,10V
	C5301	QEMU0JM-227	E CAPACITOR	220µF,6.3V
	C5302	QETN1HM-106	E CAPACITOR	10µF,50V
	C5303	QETN1CM-107	E CAPACITOR	100µF,16V
	C5304	QFLC1HJ-563Z	F CAPACITOR	0.056µF,50V
	C5305	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C6013	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C6031	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C6501	QERF1CM-226	E CAPACITOR	22µF,16V
	C6502	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C6503	QERF1HM-105	E CAPACITOR	1µF,50V
	C6504	QERF1EM-475	E CAPACITOR	4.7µF,25V
	C6505	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C6506	QERF1HM-104	E CAPACITOR	0.1µF,50V
	C6507	NCB21EK-473X	CAPACITOR	0.047µF,25V
	C6508	QERF1HM-474	E CAPACITOR	0.47µF,50V
	C6509	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C6510	QERF1HM-105	E CAPACITOR	1µF,50V
	C6511	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C6512	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C6513	QETN1HM-335	E CAPACITOR	3.3µF,50V
	C6514	QETN1HM-106	E CAPACITOR	10µF,50V
	C6515	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C6516	QEKJ1CM-106	E CAPACITOR	10µF,16V

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C6517	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C6518	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C7001	QDGB1HK-102Y	CAPACITOR	0.001µF,50V
	C7002	QEKJ1HM-106	E CAPACITOR	10µF,50V
	C7007	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C7008	NCB21EK-223X	CAPACITOR	0.022µF,25V
	C7009	NDC21HJ-220X	CAPACITOR	22pF,50V
	C7010	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C7011	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C7013	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C7014	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C7019	NCB21EK-223X	CAPACITOR	0.022µF,25V
	L1	QQL29BJ-100Z	COIL	10µH
	L2	QQL29BJ-101Z	COIL,J686EN	100µH
	L3	QQL29BJ-100Z	COIL	10µH
	L4	QQL29BJ-100Z	COIL	10µH
	L5	QQL29BJ-100Z	COIL	10µH
	L11	QQL01BJ-120Z	COIL	12µH
	L13	QQL231J-680Y	COIL	68µH
	L24	QQL231J-180Y	COIL	18µH
	L28	QQL231J-150Y	COIL	15µH
	L201	QQL29BJ-100Z	COIL	10µH
	L203	QQL231J-4R7Y	COIL	4.7µH
	L901	QQL29BJ-100Z	COIL	10µH
	L2251	QQL29BJ-100Z	COIL	10µH
	L5201	PELN1184	COIL	33µH
	L5202	PELN1184	COIL	33µH
	X1	QAX0578-001	CRYSTAL RESONATOR,J686M	
		QAX0580-001	CRYSTAL RESONATOR,J686EN	
	X2	QAX0575-001	CRYSTAL RESONATOR	
	X3001	QAX0526-001Z	CRYSTAL RESONATOR	
	X3002	QAX0444-001	CRYSTAL RESONATOR	
	S3001	QSW0602-004	PUSH SWITCH,REC.SAFETY	
	S6050	QSW0460-001	SLIDE SWITCH	
	S7001	QSW0456-002Z	TACT SWITCH,POWER	
	S7002	QSW0456-002Z	TACT SWITCH,P.JOG+	
	S7004	QSW0456-002Z	TACT SWITCH,CH-	
	S7006	QSW0456-002Z	TACT SWITCH,CH+	
	S7008	QSW0456-002Z	TACT SWITCH,MENU	
	S7010	QSW0456-002Z	TACT SWITCH,OK	
	S7011	QSW0456-002Z	TACT SWITCH,REC	
	S7013	QSW0456-002Z	TACT SWITCH,STOP/EJECT	
	S7015	QSW0456-002Z	TACT SWITCH,PAUSE	
	S7016	QSW0456-002Z	TACT SWITCH,P.JOG-	
	K2251	NQR0007-001X	FERRITE BEAD	
	K2252	NQR0007-001X	FERRITE BEAD	
	K2253	NQR0007-001X	FERRITE BEAD	
	K5101	QQR0678-001Z	FERRITE BEAD	
	PC3001	GP3S123	IC(PHOTO SENSOR)	
	PC3002	GP3S123	IC(PHOTO SENSOR)	
⚠	PC5101	PS2561L1-1/WL/	IC(PHOTO COUPLER)	
	T2051	PELN0832	OSC TRANSFORMER	
⚠	T5001	QQS0030-002	SW TRANSFORMER	
	TU6001	QAU0170-001	TUNER	
⚠	TB1	LP20316-003B	TERMINAL BOARD	
	ET1	PQ21623-2-5	EARTH PLATE(RF)	
	DI7001	QLF0031-001	FL TUBE,J686M	
		QLF0032-001	FL TUBE,J686EN	
	HD1	LP30188-001A	HOLDER,DI7001,J686EN	
		PQ35479-1-4	HOLDER(FDP),DI7001,J686M	

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	HS1	LP40090-001A	HEAT SINK,Q5101	
	SD1	LP30644-001A	SHIELD CASE(PRE)	
	OT1	QYTDST3006Z	SCREW,Q5101	
	J2	QNN0286-002	PIN JACK,A/V OUT	
	FC5001	QNG0006-001Z	FUSE CLIP,F5001	
	FC5002	QNG0006-001Z	FUSE CLIP,F5001	
	FW7106	QUM022-30A4A4	PARA RIBON WIRE	
	J7101	QNN0288-001	PIN JACK,FRONT IN	
⚠	LF5002	QQR0516-001	LINE FILTER	
⚠	VA5003	QAF0026-621	VARISTOR	
	CN1	QGF1028C1-11	FPC CONNECTOR,(1-11)U.DRUM	
	CN2001	QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD	
	CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD	
	CN3001	QGB2015M2-08	CONNECTOR,(1-8)CAPSTAN MOTOR	
	CN3002	QGF1207C1-05	FPC CONNECTOR,(1-5)DRUM MDA	
	CN3003	QGB2532J1-02	CONNECTOR,(1-2)LOADING MOTOR	
	CN3004	QGB2534J2-04	CONNECTOR,(1-4)ROTARY ENCODER	
⚠	CN5001	QGA7901C3-02	CONNECTOR,(1-2)AC IN	
	CN7001	QGF1207C1-09	FPC CONNECTOR,(1-9)MINI FRONT	
⚠	CP4001	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP5302	ICP-N25	CIRCUIT PROTECTOR	
⚠	F5001	QMF51E2-2R0	FUSE	T2.0A,AC250V

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AUDIO CONTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY	
CN1	QGF1208F1-07	FPC CONNECTOR	

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MINI FRONT BOARD ASSEMBLY(HR-J686M)<28>

PW6	LPA10088-02C6	MINI FRONT BOARD ASSY	
R7043	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7044	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7045	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
S7021	QSW0456-002Z	TACT SWITCH,REW	
S7022	QSW0456-002Z	TACT SWITCH,FF	
S7023	QSW0456-002Z	TACT SWITCH,PLAY	
CN7002	QGF1208C1-09	FPC CONNECTOR,(1-9)MAIN	

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LOADING MOTOR BOARD ASSEMBLY <55>

PW2	LPA10010-01A2	LOADING MOTOR BOARD ASSY	
CN1	QGB2533K1-02	CONNECTOR	

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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SHUTTLE BOARD ASSEMBLY(HR-J686EN) <85>

PW1	LPA20006-01A	SHUTTLE BOARD ASSY
UN7001	QSW0845-001	JOG SHUTTLE SW
CN7008	QGF1209F1-09	FPC CONNECTOR(1-9)MAIN

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LITHIUM BATTERY BOARD ASSEMBLY <93>

PW4	LPA10088-01A4	LITHIUM BATTERY BOARD ASSY
BT3001	QNZ0032-001	BATTERY HOLDER

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION